

HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1951



COMMONWEALTH BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

Winches Farm Drive, Hatfield Road,
St. Albans, England

November 1951

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HELMINTHOLOGICAL ABSTRACTS *incorporating* BIBLIOGRAPHY OF HELMINTHOLOGY

Abstracts in the present number are by :

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HELMINTHOLOGICAL ABSTRACTS

Vol. 20, Part 2

1951

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COMMONWEALTH AGRICULTURAL BUREAUX

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PHENOTHIAZINE 1942-46: A REVIEW AND BIBLIOGRAPHY

By J. Tweedale Edwards, M.R.C.V.S., and The Commonwealth Bureau
of Agricultural Parasitology (Helminthology)

November, 1947. Price 4s. od. post free

HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1951

Vol. 20, Part 2

65—Acta Agriculturae Scandinavica.

- a. BINGEFORS, S., 1951.—“The nature of resistance to stem nematode, *Ditylenchus dipsaci* (Kühn) Filipjev, in red clover, *Trifolium pratense* L. Preliminary report.” 1 (2), 180–189.

(65a) Bingefors has investigated the resistance in red clover to attack by *Ditylenchus dipsaci*. Using Merkur (a resistant variety) and Ultuna (a susceptible one) he finds that although penetration occurs in both types, there is less per plant and also a lower incidence of penetration in Merkur than in Ultuna. With other biologic races of *D. dipsaci* the same phenomena are seen. Using a very heavy inoculum of *D. dipsaci* all plants of a resistant strain can become attacked. The resistance to eelworm attack seems to consist in the inability of the nematodes to propagate in the resistant plants. A simple method for the inoculation of experimental seedlings is described. J.B.G.

66—Acta Veterinaria. Budapest.

- a. KOTLÁN, A., 1951.—“On a new case of human filariidosis in Hungary.” 1 (1), 69–79. [Russian summary p. 79.]

(66a) A single male filarial worm removed from a subcutaneous growth on the temporal region of a patient in Hungary was identified, with some difficulty, as *Dirofilaria* sp. nq. It closely resembled a specimen of *D. repens* from a dog, particularly in the structure of the cuticle; it also showed a striking similarity to Addario's *D. conjunctivae* which Skrjabin & Shikhobalova (1948) suggested may be synonymous with *D. repens*. Brief notes are given of eight cases of filariasis previously observed in Hungary, in some of which the specific diagnosis was doubtful. P.M.B.

67—Advisory Leaflet. Ministry of Agriculture and Fisheries. London.

- a. ANON., 1951.—“Potato root eelworm.” No. 284, 5 pp. [Revision of 1941 Leaflet.]

68—American Journal of Tropical Medicine.

- a. LE POOLE, A., 1951.—“Observations on cases of schistosomiasis mansoni in a non-endemic area (Aruba, N.W.I.).” 31 (3), 346–354.

(68a) Observations were made over a period of three years on 100 cases of schistosomiasis mansoni in immigrants on Aruba, an island in the Caribbean Sea, where schistosomiasis is unknown in the native population. In patients living under favourable conditions and not subjected to reinfection schistosomiasis was a non-progressive, relatively mild condition which interfered little with the patient's general condition and working capacity. In 5% of the immigrant cases eggs containing viable miracidia were still present after 12 years. The routine skin testing with cercarial antigen and biopsy of the rectal mucosa were found to be the most dependable means of establishing a diagnosis. R.T.L.

* Titles so marked throughout this number have not been seen in the original.

69—Annales de Parasitologie Humaine et Comparée.

- a. BUTTNER, A., 1951.—"La progénèse chez les trématodes digénétiques (suite). Recherches personnelles sur deux espèces progénétiques déjà connues : *Ratzia joyeuxi* (E. Brumpt, 1922) et *Pleurogenes medians* (Olsson, 1876)." 26 (3), 138-189.
- b. CHABAUD, A. G., 1951.—"Description d'un nématode parasite de mésange, *Geopetitia pari* n.g., n.sp., intermédiaire entre Tetramaridae et Crassicaudidae et hypothèses sur l'interprétation phylogénétique des helminthes de ce groupe." 26 (3), 190-200.
- c. GALLIARD, H., 1951.—"Recherches sur l'infestation expérimentale à *Strongyloides stercoralis* au Tonkin (3e note)." 26 (3), 201-227.
- d. FAIN, A., 1951.—"Étude morphologique des formes parentales de *Wuchereria bancrofti* Cobbold 1877, récoltées au Congo Belge." 26 (3), 228-244.
- e. DOLLFUS, R. P., 1951.—"Un hôte accidentel d'*Hymenolepis diminuta* (Rudolphi 1819) : l'écureuil (*Sciurus vulgaris* L.) en captivité." 26 (3), 263.
- f. DOLLFUS, R. P., 1951.—"Cystique polycéphale de *Taenia* chez une gerbille." 26 (4), 274-278.
- g. BUTTNER, A., 1951.—"La progénèse chez les trématodes digénétiques (fin). Étude de quelques métacercaires à évolution inconnue et de certaines formes de développement voisines de la progénèse. Conclusions générales." 26 (4), 279-322.
- h. SCHWETZ, J., BAUMANN, H. & FORT, M., 1951.—"Recherches sur *Schistosoma rodhaini* Brumpt 1931. (Première étude)." 26 (4), 323-333.
- i. LAGRANGE, E. & SCHEECQMANS, G., 1951.—"La bilharziose expérimentale à *B. mansoni* chez le cotton-rat (*Sigmodon hispidus*)." 26 (4), 334-337.
- j. CHABAUD, A. G. & BIOCCA, E., 1951.—"Description d'une nouvelle filaire cardiaque et remarques sur le genre *Paronchocerca* Peters 1936." 26 (4), 338-345.
- k. PAEZ, H., 1951.—"Étude d'un cas d'hématochylurie due à *Wuchereria bancrofti*. Traitement par le 1-diéthyl-carbamyl-4-méthyl pipérazine (hetrazan)." 26 (4), 346-360.
- l. CHABAUD, A. G. & LANZ, P., 1951.—"Pseudo-parasitisme de l'homme par *Agamomermis* sp." 26 (4), 376-378.

(69a) Buttner has continued her work on progenesis and describes in detail the processes in *Ratzia joyeuxi* and *Pleurogenes medians*. From a careful study of the morphology and biology she concludes that there are three valid species of *Ratzia* : *Ratzia parva* with normally progenetic metacercariae encysting in the muscles of *Rana esculenta ridibunda*, *Ratzia joyeuxi* in which the metacercariae are always progenetic and encyst below the skin of *Discoglossus pictus*, and *R. dollfusi* n.sp. the adults of which were found in *Zamenis hippocrepis*, the life-cycle being unknown. Buttner was able once to obtain adults of *R. joyeuxi* in *Z. hippocrepis* and considers these to be a biological race, *R. joyeuxi inexpectata* n.var. Progenesis in *R. joyeuxi* is normally obligatory and similar to that in *Paralepoderma brumpti*. In *Pleurogenes medians* progenesis occurs but normal development is more common ; under experimental conditions development will occur in the intestine of insect and crustacean larvae, amphibians and even reptiles, and the effects of changes in the environment upon the life-cycle have been studied. S.W.

(69b) *Geopetitia pari* n.g., n.sp. occurred in a connective tissue cyst, about 70 mm. in diameter, between the horny membrane and the musculature of the gizzard of *Parus ater* killed near Banyuls-sur-Mer, in the Pyrenees. The posterior end of the female, which is the most characteristic feature of this new genus, recalls that of the Crassicaudidae, the anterior end that of the Tetrameridae. Chabaud considers the Tetrameridae to be distinct from the Spiruridae and divides it into three subfamilies : Tetramerinae, Crassicaudinae and Geopetitiinae n.subf. R.T.L.

(69c) Galliard has continued his experimental work on *Strongyloides stercoralis*. He has studied the variation in time taken for development of larvae of different strains at the same temperature, the effect of temperature on the longevity of both female rhabditiform larvae and of filariform larvae in different culture media, and the effect on the endogenous and exogenous development of refrigeration of infective larvae between each passage. He found that not only was virulence lessened by keeping the larvae at 8°C. for several days and then at 30°C. for some hours before inoculation, but that the proportion of larvae with a direct cycle increased until only direct development occurred. By treating infected dogs with X-rays the infectivity of the larvae in subsequent passages was lessened and the

proportion with a direct cycle increased. Treatment with saline purgatives, sulphamide, chenopodium or antimonials reduced the number of females. Anthiomaline modified the exogenous cycle, anthiomaline and soluseptazine reduced the infectivity. All these effects were reversible. Preventive treatment gave no results. Galliard considers that the extreme biological plasticity shown by *S. stercoralis*, both within and without the host, as evidenced by his experiments, accounts for the existence of different strains and the varying results obtained by different workers. There is a comprehensive bibliography. s.w.

(69d) The adult *Wuchereria bancrofti* hitherto described have all come from endemic areas in Asia and South America. Fain now describes the result of a detailed study of ten males, five complete and four incomplete females, recovered during operations on two Africans from the village of Fabiese and one from the nearby village of Kimpane in the Belgian Congo. The morphological characters correspond fairly closely with those reported by other observers but there are small differences. The females measured 71 mm. to 82 mm. in length; the males ranged from 28 mm. to 38 mm. The distance from the anus to the posterior end in the female is 216–249 μ and in the male 140–180 μ . The long spicule measures 580–650 μ , the short spicule 228–250 μ . The gubernaculum is U-shaped, the left branch being 25 μ long whereas the right branch is 40 μ long. The male papillae are arranged in two groups. There are 6–10 pedunculated anal papillae and 3–5 caudal papillae and 1–2 paramedian postanal papillae. In some specimens the maximum number is 13 on the left side and 14 on the right; the minimum is 11 on the left and 13 on the right side. R.T.L.

(69e) Three mature *Hymenolepis diminuta* were found post mortem in a *Sciurus vulgaris*. The squirrel died in the Museum menagerie where it had been kept in captivity for over eight months. The tapeworm has not been recorded previously from this host. R.T.L.

(69f) A polycephalous *Taenia* cyst from the pleural cavity of *Gerbillus pyramidum hirtipes*, collected in the Oranian Sahara, had 22 branches each containing a scolex with 60 hooks. The large hooks measured from 300–378 μ and the small hooks from 205–226 μ . Although the number, dimensions and form of *Taenia* hooks vary in the same species, the differences in this case are too great to permit the identification of the cyst as that of *Taenia taeniaeformis*. R.T.L.

(69g) In this, the last of her series of papers on progenesis in digenetic trematodes, Buttner describes four progenetic metacercariae of which the development is unknown; these are *Paralepoderma progeneticum*, *Coitocaecum* sp., *Astacotrema cirrigerum* and *Brachycoelium salamandrae*. She also describes and illustrates her work on the progenetic cercaria of *Proterometra macrostoma* and on two species (*Levinseniella pellucida* and *Collyriclum faba*) which are approaching progenesis in their development. She concludes with a summary of her previous work and a comprehensive bibliography. s.w.

(69h) *Schistosoma rodhaini*, first recognized by Brumpt in 1931, has been rediscovered after a lapse of twenty years. Like the original material the specimens were obtained from laboratory mice infected from naturally infected planorbids. Typical eggs of *S. rodhaini* were later found by Stijns in the faeces and liver of a number of rodents belonging to the genera *Lophuromys*, *Pelomys* and *Praomys* and by Rodhain in *Thamnomys surdaster*. The infected rodents were collected from the neighbourhood of Elizabethville, and especially from the Keyberg plateau, in the Belgian Congo. *S. rodhaini* resembles *S. mansoni* in that the ovary is located in the anterior half of the female, there is a single egg in the uterus, the male has eight or nine testes and the intermediate host belongs to the Planorbidae, but the eggs have subterminal spines. In about one third of the eggs the spine is terminal with an appendage turned to the right. R.T.L.

(69i) In experimental infections of cotton-rats (*Sigmodon hispidus*) with *Schistosoma mansoni* none died of intestinal haemorrhage although this killed 26% of experimentally infected mice. There was no necrosis of the liver cells or tubercle formation around the eggs. Eggs and adults were unable apparently to provoke any pathological reactions although the large amount of pigment indicated that blood was consumed. The rats survived indefinitely. The eggs were usually scarce in the faeces and seldom hatched. Although mice are preferable for chemotherapeutic tests, cotton-rats may prove useful animals for the experimental study of certain other schistosome problems. R.T.L.

(69j) *Paronchocerca rousseloti* n.sp. occurred in the right auricle and pulmonary arteries of *Francolinus finschi*, and in the subcutaneous tissues of the head and neck of *F. coqui angolensis*, collected at Brazzaville in French Equatorial Africa, and in the heart of *Pternistes leucoscepus* from Somaliland. In the new species there are cuticular bosses in the male but superficial rings are absent in both sexes. The pericloacal ring bears three pairs of papillae and there is an additional pair posteriorly. The spicules measure 300-400 μ and 135-170 μ . The characters of the three species of *Paronchocerca* already known are briefly paraphrased. *Filaria sanguinis ardeae goliath* Léger & Noc, 1921 is considered to belong to the genus *Paronchocerca*, the definition of which is emended, and is renamed *P. sanguinis-ardeae* n.comb. R.T.L.

(69k) The administration of hetrazan to a case of bancroftian haemochyluria resulted in a reduction of the lymphuria and in the numbers of microfilariae in the peripheral blood and in the urinary sediment. Treatment was suspended after 1 gm. had been given owing to the exacerbation of the haematuria. Ten days later there was a progressive increase in the microfilariae and of the chyluria. It is suggested that the early and sudden disappearance of the microfilariae from the peripheral blood was largely due to their migration to the large vessels and that only after the fourth day could it be attributed to their destruction. R.T.L.

(69l) An immature *Agamomermis* was extracted from the urethra of a girl about ten years of age who had had violent hypogastric pain during the preceding night. The patient lived in a village of the Leopoldville province, in the Belgian Congo. R.T.L.

70—Annals of Internal Medicine.

- a. SALIS, H. & SMITH, W. C., 1951.—"Cerebral schistosomiasis: report of case with medical management." 34 (1), 238-243.

(70a) The detailed history is reported of a case of cerebral schistosomiasis japonica in which medical treatment alone resulted in complete recovery. The symptom complex, including Jacksonian convulsions, a positive skin test to cercarial antigen, a low grade eosinophilia, abnormal electroencephalograms and psychometric evidence of mental deterioration, ceased after treatment by injection, over a period of about six weeks, of a total of 444 c.c. of a sterile 0.5% solution of potassium and antimony tartrate intravenously. R.T.L.

71—Annals of Tropical Medicine and Parasitology.

- a. ONABAMIRO, S. D., 1951.—"The transmission of *Dracunculus medinensis* by *Thermocyclops nigerianus*, as observed in a village in south-west Nigeria." 45 (1), 1-10.
- b. DAVEY, J. T. & O'ROURKE, F. J., 1951.—"Observations on *Chrysops silacea* and *C. dimidiata* at Benin, southern Nigeria. Part I." 45 (1), 30-37.
- c. CREWE, W. & O'ROURKE, F. J., 1951.—"The biting habits of *Chrysops silacea* in the forest at Kumba, British Cameroons." 45 (1), 38-50.
- d. COORAY, G. H., 1951.—"Embryonated eggs of *Ascaris lumbricoides* in the wall of a human hernial sac." 45 (1), 62-65.
- e. DAVEY, J. T. & O'ROURKE, F. J., 1951.—"Observations on *Chrysops silacea* and *C. dimidiata* at Benin, southern Nigeria. Part II." 45 (1), 66-72.

- f. HUGHES, M. H. & SARKIES, J. W. R., 1951.—“The length of exposure to infestation and the danger of contracting onchocerciasis.” 45 (1), 73-77.
g. STANDEN, O. D., 1951.—“Some observations upon the maintenance of *Australorbis glabratus* in the laboratory.” 45 (1), 80-83.

(71a) At Iwoye in the Abeokuta province of Nigeria over 80% of the villagers showed in 1950 clinical signs of dracontiasis at the height of the dry season, but none at the close of the wet season. The vector proved to be *Thermocyclops nigerianus*. Infection was confined to the female cyclops. None of the other species of cyclops examined, viz., *Mesocyclops leuckarti*, *Microcyclops linjanticus*, *Cryptocyclops jenkiniae*, *Platycyclops phaleratus*, *Eucyclops* (*Afrocyclus*) *gibsoni*, *Tropocyclops confinis*, *Macrocyclus albidus oligolasius*, *Eucyclops* sp. and *Platycyclops* sp. were found to harbour developing guinea-worm larvae. During the height of the dry season over 5% of *T. nigerianus* in one pond were naturally infected. During the wet season the inhabitants obtained water from a well or from roof collections.

R.T.L.

(71b) The breeding sites, breeding seasons and habits of adult *Chrysops dimidiata* and *C. silacea*, vectors of *Loa loa*, at Benin in southern Nigeria are described. The labourers removing sand from the cleared river bank were constantly attacked. The rainy season was the period of abundance of flies and extended from May to November.

R.T.L.

(71d) Large numbers of embryonated *Ascaris lumbricoides* ova were found embedded in the wall of a hernial sac and in the fibrino-purulent exudate occupying its lumen. There was a uniform thickening of the tissues due to cellular infiltration, and fibrosis.

R.T.L.

(71e) This article deals with the biting habits, host preference, mode of attraction, flight range and dispersion of *Chrysops silacea* and *C. dimidiata* as observed at Benin in south Nigeria.

R.T.L.

(71f) Hughes & Sarkies have investigated, in a district near the lower Volta on the Gold Coast, the length of time which elapses between infection with *Onchocerca volvulus* and the appearance of microfilariae in the skin and eyes of 494 Africans. Microfilariae occurred in the skin of most adults in five years, and 30% had microfilariae in their eyes after exposure for ten years or more. It is suggested that all workers on hydro-electric and other development schemes should wear long trousers and that the eyes and skin should be examined for microfilariae every six months. The construction of the dams will submerge the breeding places and eventually eradicate the *Simulium* vectors.

R.T.L.

(71g) Standen recommends the use in aquaria of the aquatic plant *Ludwigia palustris* as an egg trap to encourage egg-laying by *Australorbis glabratus* for use in experimental work on *Schistosoma mansoni*. Each snail produced on an average 200-250 eggs monthly. There was no evidence of seasonal fluctuation in egg output. Although raw and lightly boiled lettuce is a satisfactory diet for adult snails, it is not so for young snails during the first two weeks after hatching. They require algal food and appear to be unable to feed at a depth of more than 7½ to 8 inches below the surface of the water. An alginate gel which proved exceedingly attractive to young snails was prepared from Bemax 1%, dried milk 0.5%, powdered dried lettuce 1%, sodium alginate 1%. These ingredients are added slowly to the required quantity of hot water in an enamel measure and agitated by a high speed mechanical stirrer. The hot viscous soupy liquid is poured into photographic developing dishes in a very thin layer and flooded with 2% calcium chloride. The resulting sheet of insoluble gel of calcium alginate is cut into strips and washed in cold water. It can be kept indefinitely in the cold room at 4°C. and can be given to young and adult snails as a standard food.

R.T.L.

72—Archivos Uruguayos de Medicina, Cirugía y Especialidades.

- a. RAUL, A., PIAGGIO BLANCO, R. A., ROGLIA, L., PERTUSSO, J. C., DIGHIERO, J. & CANABAL, E. J., 1951.—"Quiste hidático del ventriculo izquierdo roto en el pericardio.—Pericarditis hidática.—Tratamiento quirurgico." 38 (1/2), 1-34.
- b. LARGHERO YBARZ, P., 1951.—"Equinococosis secundaria del peritoneo a topografia exclusivamente epiploica." 38 (1/2), 94-97.
- c. LARGHERO YBARZ, P., 1951.—"Quiste hidático calcificado implantado en auricula derecha y venas cavas y a crecimiento en el espacio cisural del pulmón derecho." 38 (1/2), 102-108.
- d. CAMPO, J. C. DEL, 1951.—"Equinococosis secundaria local en un quiste hidático del pulmón operado." 38 (1/2), 109-114.

73—Auburn Veterinarian. Alabama.

- *a. BAILEY, W. S., 1951.—"Observations on the diagnosis of helminthiasis." 7, 71-73.

74—Australian Veterinary Journal.

- a. KEITH, R. K., 1951.—"The occurrence of *Ascaris vitulorum* Goeze 1782 in calves in Australia." 27 (6), 129.
- b. SOUTHCOTT, W. H., 1951.—"Suspected tetrachlorethylene poisoning of sheep." 27 (6), 130-131.

(74a) *Ascaris vitulorum* has been found by Keith in calves in the Armidale district of New South Wales. This is the first record of its occurrence in Australia. R.T.L.

(74b) Southcott records instances during 1945, 1948 and 1949 of deaths in young merino sheep in the Uralla district, New England region of New South Wales, after dosing with tetrachlorethylene. The sheep had not been overdosed and the tetrachlorethylene was chemically pure. The post-mortem appearances resembled those seen after carbon tetrachloride poisoning. R.T.L.

75—Berliner und Münchener Tierärztliche Wochenschrift.

- a. FROEHNER, R., 1951.—"Beitrag zur Geschichte der Trichinenschau." Year 1951, No. 6, pp. 120-121.

(75a) Froehner describes the introduction of obligatory *Trichinella* inspection of pig meat at Altenburg (Thuringia) in 1865 and the opposition of local butchers to the new regulations. A.E.F.

76—Bimonthly Bulletin. North Dakota Agricultural Experiment Station.

- a. GOLDSBY, A. I., 1951.—"Poultry parasites new to North Dakota." 13 (3), 121-122.

(76a) *Notocotylus attenuatus* is reported from a chicken in the Sheyenne River valley, North Dakota. P.M.B.

77—British Heart Journal.

- a. GHANEM, M. H. & DARWISH, A. E., 1951.—"Hydatid heart disease with paroxysmal tachycardia." 13 (1), 109-111.

78—British Medical Journal.

- a. BIRCH, C. A., 1951.—"Obstinate tapeworm." [Correspondence.] Year 1951, 1 (4717), 1263.
- b. FISHER, R., 1951.—"Obstinate tapeworm." [Correspondence.] Year 1951, 1 (4717), 1263.
- c. ALTOUNYAN, E. H. R., 1951.—"Ascaris impacted in common bile duct." Year 1951, 2 (4727), 338-339.

(78a) Mepacrine is a useful and not unpleasant treatment for tapeworm. It is given as a dose of 1 gm. in two cachets after the usual preliminary preparation. The head is expelled and the worm is stained bright yellow. R.T.L.

(78b) For obstinate tapeworm, Fisher recommends the use of filix mas. The patient is prepared in the usual way and on the second day a drachm of filix mas liquid extract made up to about 10 ml., followed by about 5 ml. of water is administered through a Ryle tube into the duodenum as observed by X-ray.

R.T.L.

79—British Veterinary Journal.

- a. JACKSON, C. R. S., 1951.—“Parasitic cyst in the orbit. Successful surgical removal with preservation of the eye.” 107 (1), 35–37.

(79a) A cyst which proved on surgical removal to be a *Coenurus serialis* caused gross unilateral exophthalmos in a Dutch rabbit.

R.T.L.

80—Bulletin de l'Académie Nationale de Médecine. Paris.

- a. COUTELEN, F., 1951.—“Réapparition de porteurs d'ankylostomes dans les houillères nationales du Nord et du Pas-de-Calais.” 3e Série, 135 (3/4), 60–63. [Discussion p. 63.]

(80a) Coutelen reports 16 cases of light infection with hookworm which were diagnosed by routine faeces examination in May and June 1949 in the coal-mining area of Lens in northern France. No cases had been reported in this area since early in the century. Infection occurred in six out of 343 Italian immigrants already working in the mines, in five out of 659 Italians examined prior to commencing work underground and in five out of 28 Frenchmen who had been repatriated from Indo-China; of the latter group only one was already employed underground. Although clinical symptoms were absent or slight, the blood picture revealed hypochromic anaemia in 12 cases; eosinophilia was present in 12 cases, most of whom were also infected with *Ascaris* and/or *Trichuris*. As only one faeces examination was made, Coutelen considers that the actual incidence may be higher than these figures indicate.

P.M.B.

81—Bulletin. Connecticut Agricultural Experiment Station.

- a. ANDERSON, P. J. & SWANBACK, T. R., 1951.—“Fumigation of tobacco soils in the seedbed and in the field.” No. 542, 23 pp.

(81a) Anderson & Swanback give details, illustrated by photographs, of methods for treating tobacco seed-beds with methyl bromide, chloropicrin, formaldehyde, and acetic acid. Methyl bromide is used at 1 or 2 lb. per 100 sq. ft. under a retaining cover of plastic (polyethylene) sheeting. Chloropicrin is applied at similar rates, injected 3–4 in. deep by spot injector or continuous-flow device. Formaldehyde is used as a drench of 2% formalin at $\frac{1}{2}$ gal. per sq. ft., and acetic acid similarly. These treatments were directed chiefly against weeds, but in Connecticut tobacco field soils *Pratylenchus* spp. cause a brown root rot and *Heterodera marioni* occurs sparsely. For these, 20% ethylene dibromide at 25–30 gal. per acre or D-D mixture at 300 lb. per acre are satisfactory, especially when injected in autumn. Improvement in the growth of plants may not be wholly due to nematicidal effects; both substances cause an increase in soil ammonia and a temporary reduction in nitrate, there being abundant nitrogen during the weeks of most rapid growth. Chemical analysis of tobacco leaves shows an increase in total nitrogen; the two fumigants lead respectively to an increase in bromine and chlorine in the leaves, but this has no obvious effect on the aroma or taste of the tobacco, though D-D slightly reduces the burning time of leaves.

B.G.P.

82—Bulletin. Mushroom Growers' Association.

- a. THOMAS, C. A. & MITCHELL, G. H., 1951.—“Eelworms (nematodes) as pests of mushroom.” No. 22, pp. 61–71.

(82a) In this popular article (reprinted from Pennsylvania Experiment Station paper No. 1594) Thomas & Mitchell give a general account of eelworms and their association

with mushroom spawn, the compost and the casing soil. In simple terms they explain what sort of animals nematodes are, that there are many different kinds, that some (*Ditylenchus* sp.) have a mouth spear with which they can pierce fungal mycelium and that others are spearless (*Rhabditis* spp.), that they may be involved in the spread of pathogenic bacteria and other organisms injurious to mushroom spawn. It is explained that they probably invade mushroom beds from the casing soil and that the initial heating up of the mixture may be uneven so that some eelworms survive and are able to spread throughout the medium. As control measures against eelworms they recommend steaming of the empty house after wetting the boards to activate any resistant forms and steaming the casing soil. Treatment of soil with formaldehyde is not recommended as it may prove deleterious by destroying nematode trapping fungi.

T.G.

83—Bulletin de la Société de Pathologie Exotique.

- a. BABLET, J., DESCHIENS, R. & PICK, F., 1951.—“ Sur un cas de distomatose hépatique chez un papion.” 44 (5/6), 297-298.
- b. DESCHIENS, R., 1951.—“ Le problème sanitaire des bilharzioses dans les territoires de l'Union française. Généralités et répartition géographique.” 44 (5/6), 350-377. [Discussion p. 377.]

(83a) Fragments of an unidentified fluke found in the bile ducts of *Papio sphinx* are presumed to belong to the *Dicrocoeliidae* from the brown colour and the dimensions ($40\mu \times 30\mu$) of the eggs.

R.T.L.

(83b) The geographical incidence of schistosomiasis in each of the various overseas territories of France is reviewed in detail and is illustrated by 11 maps. So far as is known at present the problem is not as grave as in Egypt and in the Far East, but it calls for careful study owing to its effect on the economic capacity of the population and on infant morbidity, and to the risk of spreading the infection to other regions.

R.T.L.

84—Bulletin of the South Carolina Agricultural Experiment Station.

- a. GRAHAM, T. W., 1951.—“ Nematode root rot of tobacco and other plants.” No. 390, 25 pp.

(84a) Graham presents the results of studies carried out over a number of years on root rot of tobacco, maize, cotton, crab grass and other plants. In tobacco, root rot leads to stunting of the plant with premature yellowing of the leaf and to leaf of low quality. Infested roots show reddish brown lesions which enlarge and lead to root decay. Of the crops grown on infested fields, tobacco showed the most pronounced root rot symptoms and maize the least symptoms. Two species of *Pratylenchus* only were found in the root rot infested fields, viz., *P. leiocephalus* Steiner and another for which the name *P. zaeae* has been proposed by Steiner (in litt.). *P. leiocephalus* was more frequent in cotton roots and *P. zaeae* in maize and crab grass roots. Both species infest tobacco roots. The main differences between these two species are indicated in drawings and in tables of dimensions and proportions. Determination of the populations of the two species in equal weights of tobacco and maize roots showed a ratio of 1 : 50, yet tobacco was more severely damaged than maize. The importance of maize in maintaining high populations of *pratylenchs* is emphasized with consequent severity of infestation on the subsequent tobacco crop. Cotton harboured fewer *pratylenchs* than maize but favoured development of root rot in the following tobacco crop. Evidence is presented showing that overwintering of the nematodes can take place in dead roots of crab grass, maize and cotton and to a less extent in tobacco roots. Population increase in the case of these two *Pratylenchus* species is favoured by temperatures as high as 80°F. to 90°F. Crop rotation observations showed that tobacco after maize had more root rot than after peanuts, oats/weeds or after tobacco.

T.G.

85—Canadian Journal of Zoology.

- a. RAO, N. S. K., 1951.—"*Paracuaria macdonaldi* n.g., n.sp. (family Acuaridae, subfamily Acuariinae) from the sea gull (*Larus argentatus*).” 29 (3), 167–172.
- b. RAO, N. S. K., 1951.—"*Cosmocephalus firlottei* n.sp. (family Acuariidae) from the sea gull (*Larus argentatus*).” 29 (3), 173–177.
- c. MUSFELDT KNIGHT, I., 1951.—“Diseases and parasites of the muskrat (*Ondatra zibethica*) in British Columbia.” 29 (3), 188–214.
- d. RAO, N. S. K., 1951.—"*Echinochasmus cohensi* n.sp. (family Echinostomidae, subfamily Echinochasminae) from the sea gull, *Larus argentatus*.” 29 (3), 215–218.

(85a) In *Paracuaria macdonaldi* n.g., n.sp. from the gizzard of *Larus argentatus*, the longitudinal cordons are limited to the cephalic region, but do not anastomose as in *Aviculariella* and *Rusguniella*.

R.T.L.

(85b) *Cosmocephalus firlottei* n.sp. lives in the submucosa of the oesophagus of *Larus argentatus*. A key to the eight species of the genus shows that the new species is most nearly related to *C. imperialis* from which it differs in that the long spicule is bifid, not pointed at the tip, and the ventral part of the spicular sheath is sclerotic.

R.T.L.

(85c) Of 205 muskrats collected in 17 different localities of British Columbia, 74% were parasitized but only lightly by 13 species of helminths including the larval *Cysticercus fasciolaris* and a proliferating cysticercus of *Cladotaenia* sp.inq. The helminth species recorded in the literature up to 1948 and those found in British Columbia are set out in two tables. *Echinoparyphium contiguum* is described in detail.

R.T.L.

(85d) *Echinochasmus cohensi* n.sp. is described and figured from *Larus argentatus*. It has 22 collar spines with the corner spines more posterior than the others. It is like *E. milvi* but the testes lie one behind the other, with their long axis parallel to that of the body. The vitellaria do not extend so far anteriorly and the cephalic spines are larger, measuring 42–48 μ .

R.T.L.

86—Ceylon Journal of Science. Section B. Zoology.

- a. CRUSZ, H., 1951.—“A new amphistome fluke, *Indosolenorchis hirudinaceus* gen. et sp.nov., from the caecum of a dugong from the Indian Ocean.” 24 (3), 135–141.

(86a) Crusz gives a detailed description of *Indosolenorchis hirudinaceus* n.g., n.sp. from the caecum of a male *Dugong dugong* caught off Colombo. The new genus differs from *Solenorchis* Hilmy, 1949 in that there are present in it oral pouches, oesophageal bulb, cirrus, cirrus-sac and Laurer’s canal. A redefinition of the subfamily Solenorchiniinae is given.

H.C.

87—Chronicle of the World Health Organization.

- a. ANON., 1951.—“Successful filariasis survey completed.” 5 (5), 140–141.

(87a) In a filariasis survey of the 33 islands in the three southern atolls of the Maldive Archipelago, one in every three out of 4,000 persons examined suffered from filariasis in one stage or another.

R.T.L.

88—Circular. Texas A. & M. College Extension Service.

- a. PATTERSON, C. M. & TURK, R. D., 1951.—“Control of stomach worms and liver flukes in cattle and sheep.” No. C-287, 8 pp.

89—Comptes Rendus des Séances de l’Académie des Sciences. Paris.

- a. COUTURIER, A., 1951.—“Un nouveau mode de développement chez un Mermithidae (Nematoda).” 232 (9), 884–886.
- b. NIGON, V. & ARCEL, R., 1951.—“Effets d’une élévation de température sur la prophase méiotique d’un nématode libre.” 232 (10), 1032–1034.

(89a) In the larvae of Melolonthinae and especially of *Amphimallon* spp. collected in Haut-Rhin, France, Couturier has found female mermithids 80–350 mm. long. They

were enclosed in membranous cysts attached by pedicles to the sub-epidermal layer or to the gut wall of their hosts. Two months after removal to moist sand they moulted. The eggs measured only 15μ in diameter. It is considered that this mermithid is the type of a new subfamily, and pending a full description it is named [without a differential diagnosis] *Tunicamermis melolonthinarum* n.g., n.sp. R.T.L.

(89b) Nigon & Arcel submitted sexually mature specimens of the nematode *Rhabditis elegans* (a self-fertilizing hermaphrodite), reared at a temperature of $13^{\circ}\text{C}.$, to thermal shock by keeping them in a thermostat regulated to $24^{\circ}\text{C}.$ for periods up to 48 hours. They found that the treatment profoundly affected the nuclei of the gonad as revealed by staining with Feulgen stain. Details are given of the changes observed in the chromosome patterns in different regions of the gonad and evidence is presented that a tetraploid condition was encountered. The thermal shock is effected by raising the temperature merely two degrees above that at which normal meiosis takes place and the authors suggest, as an hypothesis, that possibly the effects observed may be due to changes in the metabolism of the nucleic acids of the chromosomes. T.G.

90—Current Science. Bangalore.

- a. THIRUMALACHAR, M. J., 1951.—“Root-knot nematode on potato tubers in Simla.” [Correspondence.] 20 (4), 104.

(90a) *Heterodera marioni* is reported as causing severe disease in potatoes in the restricted areas of the Potato Breeding Sub-Station at Simla. R.T.L.

91—Día Médico. Buenos Aires.

- *a. BERTOLA, V. J., BAISTROCCHI, J. D. & SONZINI ASTUDILLO, C., 1951.—“Consideraciones clínico-quirúrgicas de la hidatidosis pulmonar.” 23 (4), 142-145.

92—East African Medical Journal.

- a. RAPER, A. B., 1951.—“*Schistosoma bovis* infection in man.” 28 (2), 50-54.

(92a) Raper relates the history of a naturally acquired infection in man of *Schistosoma bovis* in Uganda. A medical officer, after returning to Uganda from England at the end of June 1950, bathed several times during July and early August in an artificial swimming pool near Lake Victoria. On 20th August he noticed after bathing a slight itching on the shoulders, and on the following morning a few papules; by the 22nd they were widespread over the lower neck, chest, axillary folds and arms, and itched considerably. The rash disappeared by 1st September. There were no further symptoms until 20th September when he noticed that his thighs ached, his hands trembled, and he felt tired. On 24th and 25th he woke with slight colicky abdominal pain and nausea. On 25th September a few *Schistosoma bovis* eggs were found in the faeces. None were seen on the 27th or thereafter, except for one degenerate egg on 2nd October. The infection, evidently transient and almost symptomless, would have escaped detection if it had not occurred in a medical man. Raper recalls MacHattie's destructive criticisms of earlier claims that *S. bovis* infects man and that this is the first recorded clean-cut case. R.T.L.

93—Farmers Weekly. London.

- a. BULLARD, D., 1951.—“The invisible worm . . .” 34 (16), 55.

(93a) This lay article emphasizes the growing threat to the British potato industry in the spread of *Heterodera rostochiensis* especially on the lighter soils of the fenlands around the Wash. R.T.L.

94—Farming in South Africa.

- a. ANON., 1951.—“Worms in sheep, goats and cattle.” 26 (302), 149-155, 160.
- b. VAN DER LINDE, W. J. & ANGELOPULO, V., 1951.—“Rootknot nematodes.” 26 (302), 162, 168.

(94b) In South Africa two species of *Meloidogyne*, viz., *M. javanica* and *M. arenaria* and a possible third species have been identified. *M. javanica* which is the more common has been found at Bronkhorstspuit, Bethal, Rustenburg, Louis Trichardt and Nelspruit in the Transvaal, at Rietrivier and Bainsvlei in the Orange Free State and at Vredendal, Clanwilliam and near to East London in the Cape Province. So far the presence of *M. arenaria* has been determined only in a few places in the Cape Province, e.g. Berlin, Humansdorp and Ceres.

R.T.L.

95—Fragmenta Faunistica Musei Zoologici Polonici.

- a. BAZYLUK, W., 1951.—“Przyczynek do znajomości fauny pijawek (*Hirudinea*) Podlasia.” 6 (6), 129-134. [French summary p. 134.]

(95a) Bazyluk collected ten species and two varieties of *Hirudinea* in the Lublin district of Poland.

P.M.B.

96—Hassadeh.

- a. MINTZ, G., 1951.—[Additional list of plants attacked by the nematodes *Heterodera marioni* in Israel.] 31 (6), 302. [In Hebrew.]

(96a) *Heterodera marioni* is now reported from Israel in the following host plants : *Salvia sclarea*, *Thunbergia alata*, *Valeriana officinalis*, *Catalpa bignonioides*, *Citrus aurantifolia* var. *dulcis*, *Hyoscyamus muticus*, *Justicia alba*, *Nicotiana tabacum*, *Physalis peruviana*, *Rosa* sp.

R.T.L.

97—Indian Journal of Medical Sciences.

- a. KHARE, S. B., 1951.—“Ankylostomiasis.” 5 (1), 6-14.

98—Indian Medical Gazette.

- a. CHANDRA, H. & DUTT, R. L., 1951.—“Hydatid cyst of the spermatic cord.” 86 (2), 49-50.

99—Irish Journal of Medical Science.

- a. MACCARTHY, E., 1951.—“Oxyuriasis in public health.” 6th Series, No. 302, pp. 74-78.

(99a) In Dublin enterobiasis is widespread in both adults and children and is equally prevalent in all social grades. A case is cited in which a “tuberculous” cough was due to reflex irritation from threadworms. MacCarthy states that a typically anxious mother with a heavily infected child will say that “he has (i) a cough, (ii) wasting, (iii) is feverish and sweats at night, (iv) is tired, (v) is irritable, (vi) is not eating.” She thinks he has galloping consumption and is incredulous to discover that all this is due to worms. Clinically the picture is one of toxæmia : a child with threadworms looks ill with a grey pallor in contrast to its red lips, has dark circles round the eyes and an air of exhaustion. Treatment consists of administering enteric-coated gentian violet or Diphenan to the whole family. The importance of getting rid of threadworms in cases of primary tuberculosis is emphasized.

R.T.L.

100—Journal of the American Pharmaceutical Association. Scientific Edition.

- a. HALPERN, A., 1951.—“Ascaridole in chenopodium oil. IV. The synthesis of ascaridole.” 40 (2), 68-71.

101—Journal of the American Veterinary Medical Association.

- a. WATSON, D. F., VELIZ, M. O. & PAREDES J., T., 1951.—“Phenothiazine-hexachloroethane mixture in control of sheep parasites.” 118 (891), 385-387.
- b. BUSH, D. L., 1951.—“Lumbar paralysis of ovine species in Japan reportedly caused by *Setaria digitata*.” 118 (891), 388-394.
- c. BUTLER, J. M. & GRUNDMANN, A. W., 1951.—“Fecal examination of 200 dogs from Salt Lake City, for intestinal helminths.” 118 (891), 396-398.

(101a) An attempt was made to find a non-toxic anthelmintic which could be used effectively in one dose for the control of nematodes, *Taenia* and *Fasciola* in sheep, especially where it is impracticable to administer repeated individual doses. Of 46 sheep which had not previously been treated, 12 were given a 2-oz. dose consisting of 25 gm. phenothiazine in a 2% copper sulphate-nicotine sulphate solution [referred to as SCNF], 18 were given SCNF plus 20 gm. hexachlorethane in 1½ oz. water, 8 were dosed with hexachlorethane alone and 8 were kept as controls. All animals were also allowed free access to 1:14 phenothiazine-salt mixture. Egg counts from faecal samples taken after 2, 3 and 16 days showed certain differences when compared with those taken before treatment. P.M.B.

(101b) Experiments proved that in sheep and goats in Japan “lumbar paralysis” accompanied by signs of acute malnutrition was not due to injury of the brain and spinal cord caused by microfilariae of *Setaria digitata*. The condition is re-named “nutritional paresis”. Parasitism with *Strongyloides* sp., *Moniezia* sp., *Trichostrongylus* sp., *Bunostomum* sp., *Haemonchus contortus* and *Oesophagostomum columbianum* is very heavy. P.M.B.

(101c) The faeces of 44 out of 200 dogs temporarily housed in the dog pound at Salt Lake City contained helminth eggs, viz. hookworm 22 (11%), *Toxocara canis* 9 (4.5%), *Toxascaris leonina* 7 (3.5%), *Trichuris vulpis* 2 (1%), *Taenia pisiformis* 2 (1%), *Taenia* sp. 1 (0.5%) and *Dipylidium caninum* 1 (0.5%). The survey was made in 1948/9 with a view to finding *Echinococcus granulosus*, owing to the occurrence of a number of human cases of hydatidosis, but this species was not recovered. P.M.B.

102—Journal de Chirurgie. Paris.

- a. DOR, J., REBOUD, E. & CUTOLLI, J. P. DE, 1951.—“Le capitonnage dans le traitement chirurgical du kyste hydatique du poumon.” 67 (2), 113-124.

103—Journal of Helminthology.

- a. BIOCCA, E., 1951.—“On *Ancylostoma braziliense* (de Faria, 1910) and its morphological differentiation from *A. ceylanicum* (Looss, 1911).” 25 (1/2), 1-10.
- b. BIOCCA, E., 1951.—“On *Ancylostoma paraduodenale*, a new species from felines, closely related to *A. duodenale*.” 25 (1/2), 11-18.

(103a) A re-examination of *Ancylostoma braziliense* and *A. ceylanicum*, which have in recent years been considered to be identical, has revealed important differences in the mouth opening and in the bursa. These are described and illustrated. It is pointed out that there is as yet no proof that man is a host of the adult of *A. braziliense* or that it has produced “creeping eruption”. The frequent records of its occurrence in man should be attributed to infection with *A. ceylanicum*. R.T.L.

(103b) *Ancylostoma paraduodenale* n.sp. which occurs in *Felis (Leptailurus) serval* in Somaliland and *Felis leo*, *Felis caffra* and *Acinonyx jubatus* in Northern Rhodesia is smaller than *A. duodenale* and the third ventral inner tooth is sometimes apparently absent, sometimes a very small tubercle but rarely appearing as a small tooth. The cleft separating the dorso-lateral and medio-lateral rays is not so deep and the rays are less divergent than in *A. duodenale* while the externo-lateral ray is more divergent and longer. The female tail is irregularly conical and distinctly flattened dorso-ventrally. R.T.L.

103—Journal of Helminthology (cont.)

- c. SANDOSHAM, A. A., 1951.—“On two helminths from the orang utan, *Leipertrema rewelli* n.g., n.sp. and *Dirofilaria immitis* (Leidy, 1856).” 25 (1/2), 19-26.
- d. STANILAND, L. N. & SOUTHEY, J. F., 1951.—“Common vetch, *Vicia sativa* L., as a host of the oat strain of stem eelworm *Ditylenchus dipsaci* (Kühn, 1857) Filipjev, 1936.” 25 (1/2), 27-28.
- e. GOODEY, T., 1951.—“Stem eelworm attack on seedlings of vetches, *Vicia villosa* Roth. and *Vicia sativa* L.” 25 (1/2), 29-32.
- f. GOODEY, J. B., 1951.—“The ‘hemizonid’, a hitherto unrecorded structure in members of the Tylenchoidea.” 25 (1/2), 33-36.
- g. FENWICK, D. W., 1951.—“Investigations on the emergence of larvae from the cysts of the potato-root eelworm, *Heterodera rostochiensis*. 4. Physical conditions and their influence on larval emergence in the laboratory.” 25 (1/2), 37-48.
- h. FENWICK, D. W., 1951.—“Investigations on the emergence of larvae from the cysts of the potato-root eelworm, *Heterodera rostochiensis*. 5. A shortened method for the conduct of hatching tests.” 25 (1/2), 49-56.

(103c) *Leipertrema rewelli* n.g., n.sp. was collected from the pancreas of an Orang Utan (*Pongo pygmaeus*) from Borneo. It differs from other known Dicrocoeliidae in that (i) the gut branches are very short and lie dorsal to the testes which extend considerably beyond the caeca; (ii) the yolk glands tend to be clumped and to extend inwards to meet one another. *Dirofilaria immitis* is now recorded from *Pongo pygmaeus* and it is shown that *D. pongoi* of Vogel & Vogelsang, 1930 is a synonym. R.T.L.

(103d) Large numbers of *Ditylenchus dipsaci* occurred in oats and rather lighter infections in vetches in a field of mixed oats and vetches near Lechlade, Gloucestershire. Young docks were also infected. Cross infection experiments showed that the common vetch (*Vicia sativa*) must now be added to the list of plants susceptible to the oat strain of *D. dipsaci*. R.T.L.

(103e) Goodey found by pot experiments that the oat race of the stem eelworm, *Ditylenchus dipsaci*, will seriously injure seedlings of two species of vetch, viz., *Vicia villosa* Roth. and *V. sativa* L. He shows from an examination of earlier host records that the recording of *V. sativa* as a host by Ritzema Bos was an error for *V. villosa*, and that the report made by Staniland & Southey in the paper immediately preceding his own contains the earliest authentic record of *V. sativa* as a host of the stem eelworm. T.G.

(103f) J. Basil Goodey describes and figures from ten different members of the Tylenchoidea a new structure, the “hemizonid”. Twenty-two different species are listed in which the structure has been seen. It is a band-like object situated between the cuticle and hypodermis extending round the ventral side of the body and ending just short of the lateral fields. In section it frequently appears bi-convex especially when the eelworm is observed in a lateral position. J.B.G.

(103g) Fenwick describes a series of experiments on the effect of physical conditions on larval emergence from *Heterodera* cysts. The factors investigated were pre-soaking of the cysts, temperature, volume of diffusate per cyst, pH, dilution of diffusate and sunlight. On the basis of the results of these experiments he suggests suitable conditions for the conduct of hatching tests. D.W.F.

(103h) Fenwick states some of the principles applying to hatching tests with a view to evolving a shortened form of test. He makes use of the fact that if larval emergence from a batch of cysts be plotted against log time, a symmetrical sigmoid curve is obtained. A geometric method of estimating the point of inflection of such a sigmoid is given and it is claimed that the number of larvae emerging at this point represents one half of the total “hatchable” larvae under the conditions of the test. Data are presented showing that the method is usually accurate to within 10%. D.W.F.

103—Journal of Helminthology (cont.)

- i. FENWICK, D. W. & FRANKLIN, M. T., 1951.—“Further studies on the identification of *Heterodera* species by larval length. Estimation of the length parameters for eight species and varieties.” 25 (1/2), 57–76.
- j. KENDALL, S. B. & McCULLOUGH, F. S., 1951.—“The emergence of the cercariae of *Fasciola hepatica* from the snail *Limnaea truncatula*.” 25 (1/2), 77–92.
- k. WILLMOTT, S. M. & PESTER, F. R. N., 1951.—“On the transference of adult *Paramphistomum hiberniae* Willmott, 1950 from one definitive host to another of the same species.” 25 (1/2), 93–96.
- l. LEES, E., 1951.—“On the possibility of *Panagrellus silusiae* parasitizing the mouse under experimental conditions.” 25 (1/2), 97–104.
- m. OWEN, R. W., 1951.—“The helminth parasites of domesticated birds in mid Wales.” 25 (1/2), 105–130.

(103i) Using a standard technique Fenwick & Franklin measured larvae from eight populations of *Heterodera* cysts from known host plants of 36 different species and varieties. The data thus obtained were analysed and parameters derived for the mean lengths of larvae and their standard deviations for each population. The authors discuss methods of choosing a sample of larvae for measurement and indicate how different species can be identified on the basis of larval length. D.W.F.

(103j) The cercariae of *Fasciola hepatica* do not emerge from *Limnaea truncatula* under laboratory conditions at a temperature below 9°C. Emergence could be induced by removing the snails from dry habitats and immersing them in water or by removing them from watery habitats to fresh water. Emergence occurred in light or in darkness. Oxygen depletion and changes in pH between 5.5 and 8.5 had no effect. Emergence is largely passive and depends on increased pressure on the terminal part of the perivisceral space. Temporary flooding in the field is favourable to emergence and encystment. R.T.L.

(103k) Willmott & Pester describe their experiment on the transference of adult *Paramphistomum hiberniae* from host to host. They found that the paramphistomes would live for more than nine days if kept at approximately 35°C. in boiled rumen fluid, providing that the medium was renewed every 36 hours. During this time little degeneration appeared to take place. Two calves were drenched with rumen fluid containing living paramphistomes; a fortnight later a few paramphistome eggs were found in the faeces. The number of eggs present increased over a period of three months. S.W.

(103l) The free-living nematode *Panagrellus silusiae* can tolerate pH values ranging from 1 to 8.5. It can survive in gastric juice and in the absence of oxygen for 24 hours but is quickly killed by pancreatic juice. When fed experimentally to mice it is killed on passing into the intestine. In the vagina it can survive for three days, causing a certain amount of irritation. R.T.L.

(103m) Although helminth infections are frequently given as the cause of death in domestic fowls, there is little information on their effect on the growth, health and productivity. Owen has therefore studied the level of infection in domestic birds in mid-Wales and has tabulated and commented upon the results of his examination of 267 adult domestic fowls, 26 chickens aged 2–12 weeks, 20 turkeys, 27 geese, 3 goslings and 47 domestic ducks. The number of parasites found is set out under each species. The implications of his results are briefly discussed and control measures suggested. R.T.L.

104—Journal of the Indian Medical Association.

- a. KARODE, N. R., 1951.—“Allergic manifestation of roundworm infection.” 20 (7), 260.
- b. HAMID, A., 1951.—“Hydatid cyst in the neck.” 20 (7), 260.

(104a) Allergic urticaria of unknown origin was diagnosed in a woman. Fever, backache and headache were followed by urticarial patches all over the body. The face was swollen and intensely itchy. There were severe colicky pains. The administration of santonin resulted in the passage of a bunch of round worms and the symptoms disappeared, although large doses of sedatives had not given any relief. R.T.L.

105—Journal of Infectious Diseases.

- a. SPRENT, J. F. A., 1951.—“On the toxic and allergic manifestations caused by the tissues and fluids of *Ascaris*. III. Hypersensitivity through infection in the guinea pig.” 88 (2), 168–177.

(105a) Guinea-pigs infected with *Ascaris* eggs, and 14 days later injected intravenously with extract of various *Ascaris* tissues, showed that hypersensitivity could be instigated by 150 eggs. When infected with *Ascaris* larvae, anaphylactic shock was induced by the injection of various adult and larval extracts and metabolic products. Experiments performed two to three weeks after infection with *Ascaris* showed that extracts of *Ascaris columnaris*, *Toxascaris leonina* and *Physaloptera maxillaris* would cause anaphylactic shock, but that extracts of *Trichinella spiralis*, three cestodes and one trematode would not. Cross sensitization between species occurs. Two chemical fractions are involved in producing anaphylaxis but only one sensitizes guinea-pigs. Guinea-pigs infected with *T. spiralis* showed anaphylactic shock when injected with various *Ascaris* extracts. P.A.C.

106—Journal of Laryngology and Otology.

- a. BELAL, A., 1951.—“Bilharzial ova in adenoid tissue.” 65 (1), 44–45.

(106a) [This paper appears also in *J. roy. Egypt. med. Ass.*, 1951, 34 (1), 41–44. For abstract see *Helm. Abs.*, 20, No. 28a.]

107—Journal de Médecine de Bordeaux.

- a. BERGE, C., 1951.—“L'oxyurose erratique. (A propos d'un cas d'oxyure enkysté dans le meso-appendice.)” 128 (2), 323–325.

(107a) An *Enterobius vermicularis* was found encysted in the meso-appendix and surrounded by hard red connective tissue forming a mass about the size of a cherry stone. The patient had clinical symptoms of acute appendicitis. R.T.L.

108—Journal de Médecine de Lyon.

- a. GARIN, C. & GARIN, J. P., 1951.—“Sur le traitement de la filariose à *F. loa* par la notézine.” 32 (744), 13–14.

(108a) [This paper appears also in *J. Méd. Bordeaux*, 1951, 128 (1), 250–252. For abstract see *Helm. Abs.*, 20, No. 25d.]

109—Journal of Parasitology.

- a. SEITNER, P. G., 1951.—“The life history of *Allocreadium ictaluri* Pearse, 1924 (Trematoda : Digenea).” 37 (3), 223–244.
- b. CROWCROFT, P. W., 1951.—“Notes on the taxonomy of the genus *Coitocaecum* Nicoll, 1915 (Digenea : Opecoelidae).” 37 (3), 251–256.

(109a) Seitner, after summarizing the views of previous workers on the genus *Allocreadium*, describes the life-history of *A. ictaluri* which lives in the intestine of various species of catfish. The egg, miracidium, redia, cercaria and metacercaria are figured. The molluscan intermediary is *Pleurocera acuta*. The metacercariae were found encysted in nearly all of the unionid bivalves examined from the Tippecanoe River at Battleground, Indiana and from the Wabash River at Lafayette. The redia is simple and the cercaria biocellate and without a stylet. The paper ends with a discussion of the taxonomy of *A. ictaluri* and the Allocreadiidae in general. R.T.L.

(109b) The genus *Coitocaecum* at present contains 21 species of which two are unnamed. Crowcroft considers the erection of the genera *Nicolla* and *Ozakia* by Wisniewski unfortunate; he is of the opinion that existing genera should be split only when groups of species possessing common similarities and when common differences from the other species in the genus segregate them. R.T.L.

109—Journal of Parasitology (cont.)

- c. MADSEN, H., 1951.—"Notes on the species of *Capillaria* Zeder, 1800 known from gallinaceous birds." 37 (3), 257-265.
- d. SCHILLER, E. L., 1951.—"Studies on the helminth fauna of Alaska. I. Two new cestodes from Sabine's gull (*Xema sabini*)." 37 (3), 266-272.
- e. WILLEY, C. H. & GODMAN, G. C., 1951.—"Gametogenesis, fertilization and cleavage in the trematode, *Zygocotyle lunata* (Paramphistomidae)." 37 (3), 283-296.
- f. MARTIN, W. E., 1951.—"*Pygidiopsoides spindalis* n.gen., n.sp., (Heterophyidae; Trematoda), and its second intermediate host." 37 (3), 297-300.
- g. KOCH, W. & STEINITZ, H., 1951.—"Multiple helminthic infections." 37 (3), 307-308.

(109c) Madsen, who gives a revised list of the ten species of *Capillaria* reported in gallinaceous birds, does not accept López-Neyra's subdivision of the genus. *Capillaria annulata* (Molin, 1858), *C. raillieti* López-Neyra, 1947 and *C. perforans* Kotlán & Orosz, 1931 are synonyms of *C. contorta* (Creplin, 1839). *C. bursata* Freitas & Almeida, 1934 is a synonym of *C. caudinflata* (Molin, 1858); *C. collaris* (v.Linstow, 1873) falls to *C. anatis* (Schränk, 1790) and *C. cadovulvata* Madsen, 1945 to *C. phasianina* Kotlán, 1940.

R.T.L.

(109d) In this, the first of a series of studies by the parasitology branch of the Arctic Health Research Center, two new cestodes are described from Sabine's gull, *Xema sabini*: (i) *Haploparaxis* [= *Aploparaksis*] *xemae* n.sp. is differentiated from the other four species which possess a spinose cirrus. The specific name of *Haploparaxis* [= *Aploparaksis*] *fusus* is replaced by *H. baeri* nom.nov. There is a key to the 23 species of *Haploparaxis* [= *Aploparaksis*] known to occur in birds. *Hymenolepis haldemani* n.sp. in *Xema sabini* differs from all other members of the genus in the number, size and characteristic shape of the rostellar hooks and the conspicuous cirrus sac which nearly fills the antero-posterior space of the mature proglottids. *Hymenolepis californicus* recently described from *Larus* spp. is considered to be a synonym of *H. fryei* from *Larus glaucescens*.

R.T.L.

(109e) Willey & Godman in their work on the germ cell cycle of *Zygocotyle lunata* have studied the behaviour of the nuclei and chromosomes during somatic divisions and gametogenesis. From each primary spermatogonium 32 thread-like spermatozoa with no visibly differentiated head are produced; reduction takes place during the last two divisions. A single entire spermatozoon penetrates each primary oöcyte in the oviduct and the ovum nucleus then undergoes maturation divisions, forming two polar bodies. Pronuclear union and the early cleavage divisions take place in the uterus behind the posterior testis. There is no evidence that the ovum receives nutrition from degenerating oöcytes. The authors consider that there is an early separation of a propagatory cell as reported for other trematodes but that the evidence is not yet conclusive. They describe the morphology of the chromosomes and find the diploid number to be 14.

S.W.

(109f) Four to six days after cats and newly hatched chickens were fed with the brackish-water fish, *Fundulus p. parvipinnis*, collected at Newport Bay, California, small trematodes were found in the intestines. These were obviously heterophyids. They belong to no known genus and are described, figured and named *Pygidiopsoides spindalis* n.g., n.sp. The new genus differs from *Pygidiopsis* and the other genera of Centrocestinae by possessing a large muscular common genital ejector. There is a single testis, two gonotyls, and the yolk glands are placed more anteriorly. The formula of the excretory pattern is $2[(2+2)+(2+2)] = 16$.

R.T.L.

(109g) From a re-examination of helminthic infection rates among food-handlers in the Jewish army [see Helm. Abs., 18, No. 384a], Koch & Steinitz show, by means of a chi-square test, that the rate among Orientals is significantly higher than among Ashkenasics, and in females higher than in males. Double infections with *Ascaris* and *Trichuris* are twice as numerous as would be expected if both infections occurred independently. B.G.P.

109—Journal of Parasitology (cont.)

- h. HITCHCOCK, D. J., 1951.—"Parasitological study on the eskimos in the Kotzebue area of Alaska." 37 (3), 309-311.
- i. SMITH, C. F., 1951.—"Two anoplocephalid cestodes, *Cittotaenia praecoquis* Stiles and *Cittotaenia megasacca* n.sp., from the western pocket gopher, *Thomomys talpoides*, of Wyoming." 37 (3), 312-316.
- j. MUELLER, J. F., 1951.—"Spargana from the Florida alligator." 37 (3), 317-318.
- k. CORDY, D. R. & EASTLICK, M. G., 1951.—"A report of *Echinococcus granulosus* in a horse in the State of Washington." 37 (3), 318.
- l. RIEDEL, B. B., 1951.—"Group treatment with caricide for ascariasis in poultry." 37 (3), 318-319.
- m. WARD, H. L., 1951.—"The use of antibiotics in artificial media for *in vitro* experiments with *Acanthocephala*." 37 (3), 319.
- n. MAYER, M. C. & CHITWOOD, B. G., 1951.—"Helminths from fisher (*Martes p. pennanti*) in Maine." 37 (3), 320-321.
- o. ABDEL-MALEK, E. T., 1951.—"Menthol relaxation of helminths before fixation." 37 (3), 321.

(109h) The prevalence of helminth infections in Eskimos in the Kotzebue area, Alaska, was *Enterobius vermicularis* 43%, *Diphyllbothrium latum* 6%, *Trichinella spiralis* (skin test) 1.6%, hydatid (skin test with *Dipylidium caninum* antigen) 3.2%. In this area the native food consists of white whale, reindeer, bear, and fish mostly of the salt water variety. Four of the six cases of *D. latum* came from Selawik. R.T.L.

(109i) *Cittotaenia praecoquis* and *C. megasacca* n.sp. were collected from *Thomomys talpoides clusius* in Wyoming. *C. megasacca* differs from *C. praecoquis* in its small size (25 mm.) and small number of proglottids (90). The testes number 100-135 as compared with 45-60, and may extend laterally past the excretory vessels. *C. praecoquis* has not been reported previously from this host. The cestodes of pocket gophers (*Thomomys* and *Geomys*) are listed under their hosts. In some notes on the genus *Monoecocestus*, *Schizotaenia anoplocephaloides* is transferred to *Monoecocestus* as *M. anoplocephaloides* (Douthitt, 1915) n.comb. R.T.L.

(109j) Spargana were found in two Florida alligators from Manatee County. When fed to cats and dogs they gave rise to *Diphyllbothrium* of the "mansoni" group. This is the first record of spargana in alligators in the U.S.A. R.T.L.

(109k) Two hydatid cysts, each about 15 mm. in diameter, were present in the liver of a horse imported from England two years previously and slaughtered at Pullman, Washington. R.T.L.

(109l) New Hampshire chickens eight weeks old with heavy infections of mature *Ascaridia* were given caricide incorporated in their food. Caricide at 0.25%, 0.5%, 1% and 2% eliminated respectively 12%, 28.6%, 50% and 81% of the worms: 5% was toxic and too unpalatable. In another test caricide at 1% for two weeks with Epsom salt at the end of the first and second weeks eliminated 89.2%, whereas the same dosage without purging gave only 72% elimination. R.T.L.

(109m) Experiments are briefly reported which indicate that the addition of 50 mg. of dihydrostreptomycin and 140 mg. of penicillin crystalline G to one litre of Ringer-Tyrode solution gives a medium in which *Macracanthorhynchus hirudinaceus* can be kept alive for several days. R.T.L.

(109n) Twenty-seven out of 36 *Martes p. pennanti* from northern Maine contained helminths. The species found were *Mesocostoides variabilis*, *Ascaris mustelarum* and *Crenosoma* sp.inq. R.T.L.

(109o) If menthol is added to water containing molluscs, trematodes (adults and cercariae), cestodes, nematodes, acanthocephalans and leeches, the specimens are completely relaxed for study or fixation. One drop of a solution of 24 gm. menthol dissolved in 10 c.c. of 95% alcohol is sufficient in 100 c.c. of water. R.T.L.

109—Journal of Parasitology (cont.)

- p. TANABE, H., 1951.—“*Cercaria segmentinae* Tanabe 1948, a homonym of *Cercaria sturniae*.” 37 (3), 321–322.
- q. TODD, A. C. & CROWDUS, D. H., 1951.—“Methyl testosterone in the diet of chicks and growth of the nematode *Ascaridia galli*.” 37 (3), 322.
- r. WEBSTER, J. D., 1951.—“Additional notes on the helminth parasites of the bob-white in Texas.” 37 (3), 322–323.
- s. DOWELL, F. H., 1951.—“A technique for the rapid preparation of tapeworms for identification.” 37 (3), 323.
- t. KINGSCOTE, A. A., 1951.—“A note on *Ribeiroia ondatrae* Price, 1931, (Trematoda).” 37 (3), 324.
- u. READ, C. P., 1951.—“*Hymenolepis diminuta* in the Syrian hamster.” 37 (3), 324.
- v. TROMBA, F. G., 1951.—“*Trypanosoma vespertilionis* and *Litomosoides* sp. in *Eptesicus fuscus*.” 37 (3), 324.
- w. SCHELL, S. C., 1951.—“*Ascaridia galli* in hen's egg.” 37 (3), 326.
- x. CALERO M., C., ORTIZ O., P. & SOUZA, L. DE, 1951.—“Helminths in cats from Panama City and Balboa, C. Z.” 37 (3), 326.
- y. SPRENT, J. F. A., 1951.—“Observations on the migratory activity of the larvae of *Toxascaris transfuga* (Rud. 1819) Baylis & Daubney 1922.” 37 (3), 326–327.

(109p) As *Cercaria segmentinae* Tanabe, 1948 is a homonym of that of Faust, 1926, it is renamed *C. sturniae* nom.nov. but as the adults belong to the genus *Gigantobilharzia*, *C. sturniae* is redesignated *Gigantobilharzia sturniae* (Tanabe, 1948) n.comb. R.T.L.

(109q) The addition of methyl testosterone to the diet of New Hampshire chicks at the rate of 20 mg. per kg. of growing mash resulted in a statistically significant increase in the length but none in the number of worms present three weeks after exposure to 50 ± infective *Ascaridia galli* ova. R.T.L.

(109r) Webster's original account of *Raillietina minuta* is now supplemented by a description of the scolex which has ellipsoid suckers armed with four rows of spines 6–8μ long. There are 84 hooks each 13μ long arranged in a double row on the rostellum. R.T.L.

(109s) For the rapid identification of large numbers of tapeworms the worms are relaxed in tap-water, placed in lactophenol and examined by phase difference microscopy with 16 mm. and 4 mm. medium dark contrast objectives. R.T.L.

(109t) *Ribeiroia ondatrae* is reported from a domestic goose at Rockwood, Ontario. This is the first record of the occurrence of this fluke in this host in Canada. R.T.L.

(109u) *Hymenolepis diminuta* has been found as a natural infection in Syrian hamsters supplied from a commercial source in the Los Angeles area. It was readily established in albino rats. R.T.L.

(109v) *Microfilaria* and an adult female of *Litomosoides* sp. have been found in the bat, *Eptesicus f. fuscus*, collected from caves in Virginia. R.T.L.

(109x) Of 96 cats captured in Panama City and Balboa (Canal Zone) 93 contained intestinal helminths, viz., *Ancylostoma caninum* 84.5%, *Strongyloides stercoralis* 47%, *Toxocara canis* 35.5%, *Physaloptera praeputialis* 27.8%, *Taenia taeniaeformis* 21.1%, *Trichuris vulpis* 20.1%, *Dipylidium caninum* 18.2%, *Diphylobothrium mansonii* 11.5%, *Oncicola canis* 2.9% and *Physaloptera canis* 1.9%. R.T.L.

(109y) Sprent corrects his former statement [see Helm. Abs., 19, No. 337bs] that *Ascaris columnaris* had been collected from the black bear, the marten and the fisher. Those from the black bear have now been found to be *Toxascaris transfuga*. Those from the marten and the fisher are probably *A. mustelarum*. The measurements given should also be disregarded. When embryonated eggs of *T. transfuga* are administered to mice some larvae remain in the intestinal wall and become enclosed in white nodules; others migrate through the liver and lungs and eventually return to the intestine as in *A. lumbricoides*.

109—Journal of Parasitology (cont.)

- z. HUSSEY, K. L. & ALGER, N. E., 1951.—“Laboratory methods for the examination of mice for oxyurids.” 37 (3), 327.
- ba. UZMANN, J. R., 1951.—“Record of the larval trematode *Himasthla quissetensis* (Miller and Northup, 1926) Stunkard, 1934 in the clam, *Mya arenaria*.” 37 (3), 327–328.
- bb. YUTUC, L. M., 1951.—“The occurrence of *Gnathostoma spinigerum* (Nematoda) in a 33-day old pup.” 37 (3), 329.
- bc. DORAN, D. J. & READ, C. P., 1951.—“A note on *Moniliformis* in southern California rodents.” 37 (3), 330.
- bd. LARUE, G. R., 1951.—“Host-parasite relations among the digenetic trematodes.” 37 (4), 333–342.
- be. LARSH, Jr., J. E., 1951.—“Host-parasite relationships in cestode infections, with emphasis on host resistance.” 37 (4), 343–352.

Many are distributed to various other tissues of the body and become encapsulated, especially beneath the skin of the back and neck.

R.T.L.

(109z) Hussey & Alger found that the Otto, Hewitt & Strahan modification of Faust's zinc sulphate flotation technique makes it possible to detect, with fair accuracy, oxyurid infections in mice used for chemotherapeutic studies. In light infections the worms can be collected by opening the gut in zinc sulphate solution. The adults and larvae float and can easily be picked out under a dissecting microscope. There was a high correlation between the results of stool and autopsy examinations but the number of eggs and larvae found on faeces examination gave no indication of the number of worms present.

R.T.L.

(109ba) *Mya arenaria* collected from Merrimack Bay, Plum Island Sound and Annisquam River showed natural infections with *Cercaria quissetensis* ranging from 43% to 100%. The predominant foci of the metacercariae were the palps and gills. In samples from St. Andrews, New Brunswick, Canada, the infection rate was 90%.

R.T.L.

(109bb) The finding of a semi-mature specimen of *Gnathostoma spinigerum* in a native pup only 33 days old points to *in utero* infection.

R.T.L.

(109bc) Immature *Moniliformis clarki* have been found in *Onychomys torridus* captured in California.

R.T.L.

(109bd) Those activities of digenetic trematodes which at various stages in their life-cycles bring them into contact with their hosts, the routes taken to reach the sites of infection and their routes of exit are considered. The Digenea require two or three hosts. The egg laying generation lives in a vertebrate, the larval stages in a mollusc. The miracidia of those species which produce small eggs enter the molluscan host passively in faeces taken as food. Those from medium or large eggs actively penetrate the molluscan tissue. The range of attraction is small and probably age of the intermediate host is a controlling factor. The mother sporocyst is usually found in other tissues than the digestive gland which is the commonest site for the daughter sporocysts and rediae. Cercariae of some species emerge at various stages of their development before attaining their final cercarial form. Some metacercariae require many weeks after encystment to become infective, some are infective almost immediately and others do not encyst. The factors which guide the excysted worms to their organ of choice in the definitive host are unknown. The cercariae of schistosomes apparently enter their final hosts in response to thermal stimuli. Failure of a species to establish itself in an unusual host is probably due to inability to adjust itself to the different biochemical environment.

R.T.L.

(109be) Host resistance to cestode infection which may be innate or acquired is considered under racial or strain resistance and individual resistance. The mechanisms of natural and acquired resistance are discussed. It is likely that acquired resistance to certain tissue cestodes has two phases, the first in the gut which prevents entry of most of the

109—Journal of Parasitology (cont.)

- bf. DOUGHERTY, E. C., 1951.—"Evolution of zoöparasitic groups in the phylum Nematoda, with special reference to host-distribution." 37 (4), 353-378.
- bg. BAMBERGER, J. W. & MARTIN, W. E., 1951.—"Effect of size of infective dose, partial ileectomy, and time on intensity of experimental infections of *Euhaplorchis californiensis* Martin, 1950 (Trematoda) in the cat." 37 (4), 387-391.
- bh. EZZAT, M. A. E. & GAAFAR, S. M., 1951.—"*Tetrathyridium* sp. in a Syke's monkey (*Cercopithecus albigularis*) from Giza Zoological Gardens, Egypt." 37 (4), 392-394.
- bi. AMEEL, D. J., CORT, W. W. & VAN DER WOUDE, A., 1951.—"Development of the mother sporocyst and rediae of *Paragonimus kellicotti* Ward, 1908." 37 (4), 395-404.
- bj. BECK, J. W., 1951.—"*Megacirrus megapodii* n.g., n.sp., a cestode from the Malayan brush turkey, *Megapodius laperouse senex* (Cestoda : Dilepididae)." 37 (4), 405-407.

onchospheres, the second in the tissues which destroys by accelerated host response the few which have penetrated. Antibodies are probably more important during the tissue phase than secondary cellular reaction.

R.T.L.

(109bf) In the Nematoda the interconnections of free-living and parasitic forms are far more evident and complex than in the Platyhelminia. Baylis & Daubney, by placing all the free-living genera in Ascaroidea, produced an essentially unnatural grouping which Filipjev rectified by recognizing five entirely or largely free-living orders and six parasitic orders in a class or phylum Nematoda. Finally Chitwood provided a really adequate system based on phylogeny. The efforts of Soviet helminthologists to develop evolutionary theories for most of the nematode groups are criticized. Dougherty supports Baylis' conclusion that the habit of parasitism must have arisen independently in several distinct stocks of nematodes. He proceeds to discuss more particularly the basically free-living Rhabditina and the parasitic Strongylyna, and submits an outline classification of the Strongylyna in which Vogeloidinae as a new subfamily of Metastrongylidae of carnivores is proposed.

R.T.L.

(109bg) Large numbers of *Euhaplorchis californiensis* were recovered from the lower portion of the ileum of cats experimentally fed with a commercial cat food into which brains of the fish *Fundulus p. parvipinnis* containing encysted metacercariae were mixed. When this portion of the gut had been removed surgically before feeding, considerably fewer worms succeeded in establishing themselves in the remaining portion of the ileum than in the control cats. Adult worms were deeply embedded in the crypts between the villi but there was no tissue invasion or destruction of the iliac mucosa. No adults or eggs were found in the heart, lung, liver, pancreas, spleen or blood vessels. The intensity of infection after single infective feeds dropped considerably within 9-12 weeks suggesting that possibly the infection was self-limiting.

R.T.L.

(109bh) A tetrathyridium larva of *Mesocestoides* sp.inq. is described from the pelvic cavity of *Cercopithecus albigularis*. It is pointed out that as none of the published reports of spargana in African natives gave a definite description of the scolex by which tetrathyridium can be distinguished from sparganum, it is possible that the human cases of "sparganosis" may have been infections with tetrathyridia.

R.T.L.

(109bi) The life-cycle of *Paragonimus kellicotti* in *Pomatiopsis lapidaria*, already outlined by Ameel in 1934, is confirmed and the germinal development in the mother sporocyst, mother and daughter rediae is described in detail and illustrated by 35 text figures.

R.T.L.

(109bj) Cestodes in the Malayan brush turkey (*Megapodius laperouse senex*) from Palan Island in the Malay Archipelago, are described as *Megacirrus megapodii* n.g., n.sp. The worms are unique among the Dilepididae in the length of the cirrus pouch which reaches approximately 495 μ , lacks a seminal vesicle and extends to or beyond the excretory canals on the aporal side in some mature segments. No eggs were available.

R.T.L.

109—Journal of Parasitology (cont.)

- bk. RAUSCH, R., 1951.—“Studies on the helminth fauna of Alaska. VII—On some helminths from Arctic marmots with the description of *Catenotaenia reggiae* n.sp. (Cestoda: Anoplocephalidae).” 37 (4), 415-418.

(109bk) *Marmota caligata broweri* from the Brooks Range, Arctic Alaska, harboured *Ascaris laevis*, *Diandrya composita* and a new *Catenotaenia* named *C. reggiae* n.sp. It most nearly resembles *C. dendritica* differing from it by the failure of the testicular fields to unite at the posterior end of the segment, the large size of the cirrus sac and the form of the gravid uterus which has on each side 30 to 40 branches often secondarily divided. R.T.L.

110—Journal of Pharmacology and Experimental Therapeutics.

- a. BUEDING, E. & PETERS, L., 1951.—“Effect of naphthoquinones on *Schistosoma mansoni* *in vitro* and *in vivo*.” 101 (2), 210-229.

(110a) As the rate of glycolysis in *Schistosoma mansoni* has been shown to be very high, it seemed possible that an inhibitor of glycolysis might possess chemotherapeutic properties. It was found that a number of naphthoquinones are inhibitors *in vitro* at relatively low concentrations but that their action is markedly reduced in the presence of serum. Some of the compounds exerted very slight chemotherapeutic action *in vivo* but this could be demonstrated in infected mice only when subcurative doses of an antimonial were administered simultaneously. This synergism is insufficient to warrant clinical trial. R.T.L.

111—Journal of the Royal Egyptian Medical Association.

- a. HALAWANI, A., LATIF, N. & TAHA, A., 1951.—“On pentabromophenol and pentachlorophenol as molluscicides in the prevention of bilharziasis.” 34 (3), 163-170.
 b. SOROUR, O., GUIRGUIS, S. & HALIM, S. A., 1951.—“Hydatid cyst in the peritoneum with bilharzial infiltration of its fibrous walls.” 34 (3), 171-176.
 c. EZZAT, M. A. E., 1951.—“On the validity of *Avitellina nagaty* Ezzat, 1945.” 34 (3), 206-209.
 d. MISSIRLOGLOU, A., 1951.—“On the frequency of hydatid disease in Greece and on its treatment.” 34 (3), 236-237.
 e. BARAKAT, M. R., 1951.—“A new procedure for the cultivation of the nematode parasites.” 34 (4), 323-326.
 f. TADROS, W. & NOR EL-DIN, G., 1951.—“Hormonal therapy in vesical tumours.” 34 (4), 329-339.

(111a) Pentabromophenol and pentachlorophenol kill fresh-water molluscs [species not given] and their eggs in dilutions ranging from 1-5 parts per million. Five parts per million in Nile water killed in two hours. One part in two million of pentabromophenol was lethal when allowed to act for three days. These chemicals also had a marked inhibitory action on their egg production and were lethal to *Gambusia affinis* but not to aquatic plants or mosquito larvae. Their effect on rice and other important crops in Egypt has still to be investigated. Five parts per million killed schistosome eggs, miracidia and cercariae. Pentachlorophenol is irritating to the respiratory passages and causes sneezing during its application. R.T.L.

(111b) In Egypt hydatid is rare in man but is common in camels (31%), buffaloes (16%), cattle (10%), sheep (1.5%) and dogs (10%). In a human case now reported from a farm near Luxor, schistosome eggs and local reaction were observed in the fibrous wall of the cyst. R.T.L.

(111c) The validity of *Avitellina nagaty* which occurs in sheep and camels in Egypt is confirmed. It differs from *A. woodlandi* in the formation of the paruterine organs which do not overlap or alternate. The dorsal excretory canal lies outside the ventral canal and persists in gravid segments. R.T.L.

(111d) Missirloglou points out that Greece with 3,038 cases occupied third place in the world incidence of hydatid in man between 1900 and 1920, and attained first place

with 2,069 cases from 1930-1937. The disease is more frequent in old Greece than in the north of Greece where 10% of the cases have the pulmonary type of infection. R.T.L.

(111e) The following method proved satisfactory for the cultivation of ova of *Nippostrongylus muris*. Cultures were made in petri dishes. The faeces were mixed with activated alumina, and cellulose powder was spread in the centre of the petri dish, well moistened with distilled water and covered with filter paper 7 cm. in diameter; the faecal mixture was thoroughly mixed with Shirilan solution (20:1) and spread on the centre of the filter paper. A few particles of calcium carbonate were sprinkled on the surface to ensure alkalinity. The petri dishes were then covered with sheets of moistened blotting paper and incubated at 27°C. which proved to be the optimum temperature for hatching the ova and also for the life span and infectivity of the larvae. The Shirilan solution kept the cultures free from fungal growth. The infective larvae collected on the free edge of the filter paper and were counted under the microscope. The edge of the paper was cut off and placed directly on the shaved abdomen of the experimental animal fixed on a small board. By this method, named "the direct percutaneous method of infection", each larva could be seen to be alive and the usual errors in counting larvae in a suspension were eliminated. R.T.L.

(111f) Eight cases of malignancy of the bladder, which were too advanced for surgical interference and had a history of old bilharzial infection, were treated by continued oestrogenic (Ovobrene) and androgenic (testosterone propionate) therapy. There was marked amelioration in seven of the cases and in two the tumours diminished considerably. It is suggested that in patients suffering from persistent strangury and haematuria routine cystoscopy and examination of the urine for cancer cells should be carried out. R.T.L.

112—Journal of the Royal Naval Medical Service.

- a. GENT, J. C., 1951.—"A case of ancylostomiasis." 37 (2), 110-112.

(112a) A sergeant in the Royal Marines contracted *Necator americanus* when in camp in Ceylon about five years before the condition was diagnosed. R.T.L.

113—Journal of the Royal Sanitary Institute.

- a. DAVISON, W. S., 1951.—"Observations regarding some animal parasites of public health importance." 71 (4), 376-382. [Discussion pp. 382-385.]

(113a) Reviewing present knowledge of the incidence of *Trichinella spiralis*, *Cysticercus bovis* and *C. cellulosae* as revealed in abattoirs in Great Britain, Davison claims that these parasites must be considered both from the medical and veterinary point of view and that it is quite illogical to regard them only from the meat inspection angle. R.T.L.

114—Journal of the South African Veterinary Medical Association.

- a. FOURIE, P. J. J., 1951.—"Letsels van *Oesophagostomum columbianum* (knoppieswurm) in die blesbok [*Damaliscus albifrons* (Burch.).]" 22 (2), 63-67. [English summary p. 63.]

(114a) Fourie describes and figures lesions, due to *Oesophagostomum columbianum*, found in the blesbok (*Damaliscus albifrons*) at Badfontein, Vereeniging in South Africa. The infection was apparently derived from sheep running on the same veld. *Haemonchus contortus* were present in the abomasum. R.T.L.

115—Journal of the Tennessee Academy of Science.

- a. GOODMAN, J. D., 1951.—"Studies on trematode cercariae at Reelfoot Lake, Tennessee, I." 26 (1), 22-25.
b. GOODMAN, J. D., 1951.—"Studies on trematode cercariae at Reelfoot Lake, Tennessee, II." 26 (1), 55-72.

- c. DOWELL, F. H., JONES, A. W. & COOPERRIDER, D. E., 1951.—“A technique for the rapid preparation of tapeworms for identification.” [Abstract of paper presented at the 60th Annual Meeting of the Tennessee Academy of Science, Johnson City, Tenn., December 8 & 9, 1950.] 26 (2), 149.
- d. JONES, A. W., 1951.—“The chromosomes of *Davainea proglottina*.” [Abstract of paper presented at the 60th Annual Meeting of the Tennessee Academy of Science, Johnson City, Tenn., December 8 & 9, 1950.] 26 (2), 150.

(115a) Four of the 8 species of molluscs collected at Reelfoot Lake, Tennessee, contained trematode larvae. In *Physa gyrina* there were 15 different kinds of cercariae, viz., seven xiphidiocercariae, one echinostome cercaria and seven strigeid cercariae. In *Helisoma trivolvis* there were four different xiphidiocercariae; in *Viviparus intertextus* there were two kinds of echinostome cercariae, one xiphidiocercaria and one strigeid cercaria; in one *Gastrodonta ligera* a cercaria and a metacercaria of the brachylaemid type occurred. Only five of these 21 larval species could be definitely assigned to known species. Infection rates based on the natural liberation of cercariae and on the presence of developing forms in crushed snails, even in collections from the same area, showed great discrepancies.

R.T.L.

(115b) Of the 22 species of cercariae found in molluscs in Reelfoot Lake, nine new forms are described and illustrated viz., (i) five longifurcous pharyngeal strigeid cercariae from *Physa gyrina* named *C. obioni* n.sp., *C. byrdi* n.sp., *C. fimbriata* n.sp., *C. parolinearis* n.sp., and *C. samburgi* n.sp.; (ii) two longifurcous apharyngeal monostomate cercariae (Multicellulata group) from *Physa gyrina* named *C. paramulticellulata* n.sp. and *C. isomi* n.sp.; (iii) a longifurcous pharyngeal monostomate cercaria (“Tetis” group) from *Viviparus intertextus* named *C. yankapinensis* n.sp. and (iv) an echinostome cercaria (“Agilis” group) from *V. intertextus* named *C. palegae* n.sp. The ten other species are not described or named in this paper.

R.T.L.

(115d) *Davainea proglottina* has a diploid chromosome number of 18 which is the highest yet reported for cestodes. There are one pair of large, two pairs of medium large, five pairs of medium small and one pair of very small chromosomes.

R.T.L.

116—Journal of Tropical Medicine and Hygiene.

- a. WATSON, J. M., PRINGLE, G. & JAMIL, A. K., 1951.—“Clinical investigations on the treatment of urinary bilharziasis. Part II. Miracil D.” 54 (7), 137–143.
- b. JELLIFFE, D. B., 1951.—“Oil of chenopodium in the treatment of ascariasis.” 54 (7), 143–146.

(116a) Twenty-five cases of schistosomiasis haematobia treated in Baghdad by the oral administration of a total of 100 mg. per kg. body-weight of enteric-coated miracil-D in doses of 10 mg. per kg. body-weight twice daily showed that this is an efficient drug for the treatment of urinary schistosomiasis. Its unpopularity is due to the profound distaste of the patients owing to headache, anorexia, nausea, vomiting, abdominal pain and giddiness which, in many instances, persisted for several days after its administration had ceased. These unpleasant side effects operate against its use in mass treatment campaigns. Dosage schedules and results reported by various authors are tabulated.

R.T.L.

(116b) Three cases of fatal liver damage in Africans who died of cholaemia following self-treatment with a proprietary mixture of oil of chenopodium and castor oil are briefly described. It is suggested that oil of chenopodium in capsules would be less likely to produce ill effects and might be sold in one dose “packs” of different sizes for different age groups together with a packet of magnesium sulphate crystals as a purgative.

R.T.L.

117—Journal of the Washington Academy of Sciences.

- a. DURBIN, C. G. & HONESS, R. F., 1951.—“A new roundworm, *Nematodirus rufaevastitatis* (Nematoda: Trichostrongylidae) from domestic sheep, *Ovis aries*, in Wyoming.” 41 (5), 179–180.

(117a) *Nematodirus rufaevastitatis* n.sp. from domestic sheep in the Red Desert area, Wyoming, and in western Wyoming closely resembles *N. spathiger* in the termination of

the spicules. A key to the nine species in ruminants shows that *N. rufaevastitatis* differs from known forms in the size of the bursa which measures 0.25 mm. to 0.34 mm. from base to tip, and in the non-bifid tip of the dorsal ray. R.T.L.

118—Lebensmitteltierarzt. (Supplement to Deutsche Tierärztliche Wochenschrift.)

- a. SCHAAF, J. & BELLERSEN, W., 1951.—“Ueber eine Trichinose-Epidemie.” 2 (7), 97–103.

(118a) Over 400 cases of trichinelliasis resulted in three months from eating raw “wurst” sausage purchased from one butcher. [The place of the outbreak is not stated.] The source of infection was traced to a consignment of meat from Poland. Most of the cases were fairly mild and this was attributed to treatment with foudadin. P.M.B.

119—Medical Journal of Malaya.

- a. POLUNIN, I., 1951.—“Observations on the distribution of filariasis in the interior of the Malay Peninsula.” 5 (4), 320–327.

(119a) Polunin has studied the incidence of endemic filariasis in the Malay peninsula. He records Perak, Pahang, and Selangor as three new endemic foci; all are under-developed inland areas of a different type of terrain and far removed from previously reported foci. He is of the opinion that the distribution of the disease is probably far more extensive than has yet been reported. There are three maps, and an appendix which contains data collected from the study of four complete aboriginal populations, eight aboriginal groups and twelve inland Malay groups. S.W.

120—Medycyna Weterynaryjna.

- a. SZAFLARSKI, J. & NAWROCKI, J., 1951.—“Zastosowanie frakcji wielocukrowej i białkowej przy diagnostyce motylicy u owiec.” 7 (1), 16–19. [English & Russian summaries p. 19.]
 b. CHILIMONIUK, J., 1951.—“Obraz krwi prosiąt w przebiegu zarobaczenia mieszanego.” 7 (1), 34–35.
 c. POLUSZYŃSKI, G., 1951.—“Z zagadnień radzieckiej parazytologii.” 7 (2), 107–108.
 d. DOBROWOLSKA, D. & GRABDA, E., 1951.—“Cykl roczny wydalania jaj nicieni u koni.” 7 (4), 235–236. [French & Russian summaries p. 236.]
 e. DONIGIEWICZ, K., 1951.—“Uwagi o leczeniu motylicy wątrobowej u owiec zastrzykami czterochloru węgla CCl₄ do żwacza.” 7 (4), 237–239.

(120a) The polysaccharide fraction of dried *Fasciola hepatica*, when used as a provocative by injection into the lower eyelid of sheep with fascioliasis, showed that this intradermo-palpebral test is group specific and should prove suitable after further elaboration as a provocative for allergic tests. Infection with other parasites did not affect the course of the reaction which depends on the duration of the infection, not on the number of flukes present. With the lapse of time the reaction became less marked. The protein fraction proved only partly specific and is unsuitable. R.T.L.

(120b) From an examination of the faeces of 17 pigs about six months old, Chilimoniuk found infection with *Ascaris lumbricoides* in nine, *Oesophagostomum* in 17, *Strongyloides* in 13, *Trichuris suis* in 14 and coccidia in 14. In these pigs the number of red blood corpuscles varied from 3.9–7.5 million per c.mm., white corpuscles varied between 14,300 and 35,600 per c.mm. Haemoglobin was 60–78%, segmented granulocytes 12.5–61%, non-segmented granulocytes 2–27%, young stages of granulocytes 0.5–32.5%. In six pigs the basophils were 0.5–1%, in seven pigs eosinophils were 0.5–2%, lymphocytes 20.5–62%, monocytes 0.5–2% and plasma cells 0.5–1%. In three pigs polychromatophilia, poikilocytosis and many Jolly's corpuscles occurred. C.R.

(120c) This is a report of the proceedings of the Parasitological Conference of the Academy of Sciences in Leningrad. C.R.

(120d) The egg production of strongyles and *Parascaris equorum* in horses was followed throughout the year. In 24 town horses there was no marked seasonal increase but in 14 country horses there was a rise which, as shown by graphs for two successive years, corresponded to the curve of the average monthly temperature. R.T.L.

(120e) For the treatment of fascioliasis, Donigiewicz recommends carbon tetrachloride in a dose of one ml. for lambs and two ml. for adult sheep, injected into the rumen. This gave good results in 4,170 sheep treated, and the losses were about 0.5%. C.R.

121—Mémoires du Muséum National d'Histoire Naturelle. Paris.

- a. ROMAN, E., 1951.—"Étude écologique et morphologique sur les acanthocéphales et les nématodes parasites des rats de la région lyonnaise." Série A, Zoologie, 2 (2), 49-268.

(121a) Of the helminth species which Roman collected from rodents in the Lyons district, 15 were nematodes and one an acanthocephalan. Details are given of their morphology, life-cycle and host relationships. With the exception of *Strongyloides ratti*, all were specific either to *Rattus* or to *Mus musculus* and *Apodemus sylvaticus*; they differed from those infecting the Arvicolinae. Two immature specimens of *Ascaris lumbricoides* (or *A. lumbricoides* var. *suum*), one 18.5 mm. in length were found in rats. A comparative study of the male and female genital tubes suggests that the genus *Heterakis* should be replaced in Ascaroidea and that (i) *Trichuris* and *Capillaria* and (ii) *Trichosomoides* and *Trichinella* should form two families of Trichuroidea. P.M.B.

122—Monatshefte für Veterinärmedizin.

- a. SCHMIDT, J. & LEIDL, W., 1951.—"Fermentative Behandlung der Ascaridosis bei Hunden und Katzen. Vorläufige Mitteilung." 6 (10), 185-186.

(122a) In this preliminary report Schmidt & Leidl state that ascarid infection in dogs and cats has been successfully treated by a single dose of "Nematolyt" (a proteolytic enzyme which attacks and destroys the keratin integument of the worms). The normal dosage was 0.5 gm. per kg. body-weight, given in a little water. No toxic effects on the hosts were observed. A.E.F.

123—Nachrichtenblatt des Deutschen Pflanzenschutzdienstes.

- a. GOFFART, H., 1951.—"Methoden zur Untersuchung von Böden auf Kartoffelälchen." 3 (2), 25-27.

(123a) Potato root eelworm cysts can be found on the roots only for a limited time in summer; at other times diagnosis must depend on the examination of soil samples. Goffart gives details of his method in which air-dried samples are washed successively through sieves of 3 mm., 1 mm., and 0.25 mm. mesh, the cysts being retained on the latter. Differentiation from cysts of other *Heterodera* spp. and from cyst-like bodies in soil is discussed and illustrated. B.G.P.

124—Nature. London.

- a. SANDARS, D. F., 1951.—"Viability of *Ascaris lumbricoides* eggs 'preserved' in formalin." [Correspondence.] 167 (4253), 730.
 b. HENDERSON, V. E., 1951.—"Some host relationships of the potato-rot nematode, *Ditylenchus destructor* Thorne, 1945." [Correspondence.] 167 (4258), 952.
 c. FILMER, D. B. & McCLURE, T. J., 1951.—"Absorption of anti-nematode antibodies from ewe's colostrum by the new-born lamb." [Correspondence.] 168 (4265), 170.

(124a) *Ascaris lumbricoides* ova in faeces which had been preserved by hot 10% formalin seven months previously were found to contain developed larvae which showed

active movement when the room temperature was 77°F. but they became inactive at 70°F. The concentration of the formalin was estimated at not less than 6% (= 2.4% formaldehyde). No development had taken place in another specimen preserved at the same time but in which the concentration of the formalin was found to be 18.5% (= 7.4% formaldehyde).

R.T.L.

(124b) Henderson reports *Ditylenchus destructor* from a number of new hosts on Prince Edward Island, viz., sweet potato, *Allium cepa*, *Trifolium pratense*, *Solidago graminifolia*, *Trifolium hybridum*, *Plantago major*, *Linaria vulgaris*, *Sisyrinchium angustifolium*, *Vicia sativa* and *Daucus carota*. In all cases the eelworms were confined to underground parts of the plant. *D. destructor* from many of these plants was successfully transferred to potato.

J.B.G.

(124c) Filmer & McClure show that the colostrum of a parturient ewe contains antibodies of relatively high titre. The serum of the new-born lamb did not contain demonstrable antibodies until after suckling. The maximum antibody titre was reached in one week. It then fell off to a low level during the following five weeks, which was maintained for at least three months. Although exposed to nematode infection, no eggs were detected in the faeces of the lamb.

S.W.

125—New Zealand Journal of Agriculture.

- a. WATT, I. G., 1951.—“Diseases transmitted from animals to man.” 82 (3), 279, 281, 283–284; (4), 357, 359, 361, 363–364.
- b. MULLINS, J., 1951.—“Danger through faulty use of balling or drenching guns.” 82 (5), 405.

126—New Zealand Journal of Science and Technology. A. Agricultural Research Section.

- a. EWER, T. K. & SINCLAIR, D. P., 1951.—“Internal parasitism in Canterbury sheep.” 32 (5), 35–48.

(126a) This paper deals with the helminthological aspects in New Zealand of (i) winter feeding of ewes and subsequent feeding of both ewes and lambs until weaning, (ii) summer fattening of lambs on specially grown feeds and (iii) winter feeding of hoggets. The experiments were conducted at the Kirwee Experimental Farm between 1940 and 1947 because a field survey during 1938–1939, when losses were very high, showed that the number of worms carried by unthrifty sheep frequently reached dangerous levels. The commonest species in Canterbury sheep were *Ostertagia* spp. (especially *O. circumcincta*) and *Trichostrongylus* spp. (*T. colubriformis*, *T. vitrinus* and *T. axei*). *Cooperia* spp. were much less common. *Haemonchus contortus* was confined to a strip of country at the base of the main mountain range and around Lake Ellesmere. Throughout the trials there was no indication that unthriftiness among ewes could be attributed to serious worm infection but in lambs it was due to a high level of infection and none were fat enough to be fit for killing when weaned. When rape and sweet blue lupins were used for fattening newly weaned lambs there was a marked drop in faecal egg counts of both drenched and undrenched lambs, which at slaughter showed little difference in worm burden. Apparently there was an intimate relation between climate, nutrition and worm infection. The critical limit was in the vicinity of 2,000 trichostrongyle eggs per gm. of faeces. This is likely to be reached when the spring is both warm and wet. When it is reached drenching of unweaned and weaned lambs will probably result in better weight gains. Only when there has been a severe prior lowering of the plane of nutrition and concurrent weather conditions favourable to worm development will there be interference with the growth rate in hoggets and a favourable response to drenching.

R.T.L.

127—Pacific Science. Honolulu.

- a. SCHWABE, C. W., 1951.—“Studies on *Oxyspirura mansoni*, the tropical eyeworm of poultry. II. Life history.” 5 (1), 18–35.

(127a) Schwabe continues his study of *Oxyspirura mansoni*. He describes and draws the larvae and adults and tabulates the measurements obtained by himself and by other workers. The methods used for breeding and infecting the cockroaches (*Pycnoscelus surinamensis*) are given. First-stage larvae were found in the gut of the cockroaches 48 hours after infection and development to the third-stage larvae took about 45–56 days. Third-stage larvae introduced into chickens' mouths appeared in the eyes five minutes later and young adults were present on the 23rd day. Embryonated eggs appeared in the crop on the 32nd day. *Argusianus argus argus* and *Diardigallus diardi* are recorded as new hosts. Schwabe concludes that local wild birds are of little importance as reservoir hosts. S.W.

128—Parasitology.

- a. MACFARLANE, W. V., 1951.—“The life cycle of *Stegodexamene anguillae* n.g., n.sp., an allocreadiid trematode from New Zealand.” 41 (1/2), 1–10.
 b. JOHRI, L. N., 1951.—“On avian cestodes of the family Dilepididae Fuhrmann 1907, collected in Burma.” 41 (1/2), 11–14.
 c. CREWE, W., 1951.—“The occurrence of *Cercaria patellae* Lebour (Trematoda) and its effects on the host; with notes on some other helminth parasites of British limpets.” 41 (1/2), 15–22.
 d. REES, G., 1951.—“The anatomy of *Cysticercus taeniae-taeniaeformis* (Batsch 1786) (*Cysticercus fasciolaris* Rud. 1808), from the liver of *Rattus norvegicus* (Erx.), including an account of spiral torsion in the species and some minor abnormalities in structure.” 41 (1/2), 46–59.
 e. DOUGHERTY, E. C., 1951.—“A further revision in the classification of the family Metastrongylidae Leiper [1909] (Phylum Nematoda).” 41 (1/2), 91–96.

(128a) *Stegodexamene anguillae* n.g., n.sp. from the fresh-water eels *Anguilla dieffenbachii* and *A. australis schmidtii* in New Zealand is differentiated from *Aephnidiogenes* by the structure of the cirrus pouch which encloses the whole of the seminal vesicle; from *Lepidapedon* as it does not possess a long prepharynx, a constricted cirrus pouch or a ventral sucker smaller than the oral sucker; and from *Horatrema* in that it has a left-sided genital pore, a short enclosed seminal vesicle, regular not asymmetrical yolk glands and a cylindrical body. The rediae develop in the fresh-water gastropod *Potamopyrgus antipodum* and the cercariae encyst in the fish *Gobimorphus gobioides*. The metacercariae are progenetic. R.T.L.

(128b) *Eugonodaeum burmanensis* n.sp. from *Charadrius placidus* and *E. byrbalis* n.sp. from *Aquila vindhiana*, and two known species of *Dilepis* collected in Burma are described and figured. R.T.L.

(128c) *Cercaria patellae*, two unidentified cercariae and a larval cestode are described, with ecological data, from the digestive gland of *Patella vulgata*, *P. depressa* and *P. intermedia* in the Isle of Man. R.T.L.

(128d) The musculature, excretory and nervous systems of fully developed *Cysticercus fasciolaris* from rats are described, including some abnormalities, particularly a spiral torsion of the internal organs of the strobila. R.T.L.

(128e) Dougherty agrees with Gerichter that the lungworms of the Skrjabinigylinae should not have been placed in the Trichostrongylidae. The “trichostrongylid” configuration of the ovejectors is probably convergent. *Dictyocaulus* is removed from Skrjabinigylinae to Dictyocaulinae. In a schematic diagram of the phylogeny of the family Metastrongylidae, the symbiote and host evolution are correlated. In an addendum Dougherty comments on recent papers on the systematics of the Metastrongylidae. *Troglostrongylus brevior* should be *Bronchostrongylus brevior* n.comb. *Anafilaroides* is insufficiently justified as a distinct genus from *Filaroides*; *Synhetocaulus muraschkinzewi* and *S. davtiani* are transferred to *Protostrongylus*. *Otostrongylus andreewae* and *Pharurus oserskaiaae* are changed to *O. andreewae* and *P. oserskaiaae*. R.T.L.

129—Phytopathology.

- †a. CHITWOOD B. G., SPECHT, A. W. & HAVIS, A. L., 1951.—“Reactions of peach seedlings to nematode infections.” 41 (6), 559.
- †b. CRITTENDEN, H. W., 1951.—“Root-knot nematode control on cantaloupes.” 41 (6), 560.
- †c. HOLSTON, E. M. & CRITTENDEN, H. W., 1951.—“Resistance in soybeans to root-knot nematodes.” 41 (6), 562.
- †d. SASSER, J. N., 1951.—“The use of gelatin capsules for making single egg-mass inoculations with the root-knot nematode (*Meloidogyne* spp.).” 41 (6), 564.
- †e. TARJAN, A. C., 1951.—“Pathological behavior of root-knot nematode on snapdragon.” 41 (6), 566.
- †f. TARJAN, A. C. & FERGUSON, M. H., 1951.—“Association of certain nematodes with yellow tuft of bent grass.” 41 (6), 566.
- g. ANDERSON, P. J., 1951.—“Control of tobacco nematodes by soil fumigation.” 41 (7), 657.
[Abstract of paper presented to the Northeastern Division of the American Phytopathological Society, Springfield, Mass., December 19 & 20, 1950.]

(129a) In experimental inoculations of three varieties of peach root-stock seedlings with *Meloidogyne javanica*, the variety S-37 proved the most resistant. “Yunnan” was the least resistant. “Red Shadow” was moderately infected. The three varieties were also inoculated with both *M. javanica* and *M. incognita*. “Yunnan” was resistant to *M. incognita*. “Lovell” proved susceptible to both species. The influence of the infections on the proportions of magnesium, potassium and calcium in the leaves showed variations in the different varieties. In the “Lovell” and “Yunnan” varieties a root-weight reduction was associated with marked magnesium and calcium reduction.

R.T.L.

(129b) Applied in autumn in field tests at Delaware, Iscobrome D (23% ethylene dibromide) at 29 gal. per acre and D-D mixture at 21 gal. per acre were equally effective in the control of root-knot on cantaloupes. Spring treatment with D-D lowered the yield of the Hale's Best variety. In untreated plots this variety produced higher yields than Schoon's Hardshell variety when severely infested.

R.T.L.

(129c) The average root-knot indices of the soybean varieties Illini, Lincoln, Dunfield, Hawkeye, Richland, Wabash, Earlyana and Chief, planted in a field infested with *Meloidogyne incognita* var. *acrita* were respectively 5.5, 27.2, 30.9, 38.0, 45.8, 52.8, 55.9 and 61.4. In the greenhouse the averages were Illini 23, Wilson Black 37, Patoka 52, Richland 77, Lincoln 80, Chief 87 and Earlyana 89. Histological examination of roots treated with strong Flemming's solution showed that the apparently resistant Illini variety was as severely affected as the susceptible variety Chief. It is concluded that naked eye examination of gall formation may indicate tolerance not true resistance.

R.T.L.

(129d) Gelatin capsules (No. 00) each containing a single egg mass of *Meloidogyne* spp. with a little moist sterilized soil can be easily and rapidly used to inoculate large numbers of plants. At greenhouse temperatures the capsules are dissolved if the soil is watered immediately. The larvae are released within 24 hours. Egg masses in capsules can be kept in stoppered bottles in the refrigerator if this is opened every few days to renew the oxygen supply.

R.T.L.

(129e) The varied effects of inoculating *Antirrhinum majus* with various species of *Meloidogyne* are briefly summarized.

R.T.L.

(129f) *Panagrolaimus rigidus* and *Eucephalobus oxyuroides* usually regarded as free-living saprophytes have been found in “yellow tufts” of bent-grass which have damaged the putting greens of several golf courses in the Middle Atlantic States. If in sufficient quantity within the shoots, their presence may contribute to the “yellow tuft” syndrome.

R.T.L.

† Abstract of paper presented at the 8th Annual Meeting of the Potomac Division of the American Phytopathological Society, Beltsville, Md., February 27 & 28, 1951.

(129g) Experiments during the past five years have shown that *Heterodera marioni* and *Pratylenchus pratensis* infections of tobacco in the Connecticut Valley can be controlled by fumigation with ethylene dibromide or D-D mixture. On lightly infested fields the increased yield was 11% and a further increase of 11% in grading, giving an increase of \$150 per acre. The benefit lasted for at least two years. Taste, aroma and burning quality of the cured tobacco were not affected.

R.T.L.

130—Plant Disease Reporter.

- a. TAYLOR, A. L. & CHITWOOD, B. G., 1951.—“Root knot susceptibility of *Lycopersicon peruvianum*.” 35 (2), 97.
- b. McWHORTER, F. P. & ANDERSON, C. J., 1951.—“Diseases in Croft lily plantings, 1949–50.” 35 (2), 106–108.
- c. SASSER, J. N., FELDMESSER, J. & FASSULIOTIS, G., 1951.—“Studies on the control of golden nematode of potatoes, with Systox spray (E-1059), an organic phosphate insecticide.” 35 (3), 152–155.
- d. REYNOLDS, H. W., 1951.—“The occurrence of the sugar-beet nematode in Arizona.” 35 (3), 173.

(130a) Taylor & Chitwood report that in trials carried out with various species of root-knot nematodes, it was found that *Lycopersicon peruvianum* showed no infestation with *Meloidogyne incognita* (Kofoed & White) obtained from several sources. It was heavily infested by *Meloidogyne arenaria* (Neal) and moderately infested by *M. incognita* var. *acrita* Chitwood and by *M. hapla* Chitwood.

T.G.

(130b) McWhorter & Anderson report that meadow nematodes (*Pratylenchus* spp.) were found infesting the roots of Croft lilies, *Lilium longiflorum* Thumb., in three commercial plantings in Oregon. They give particulars of one plantation in which an excellent crop of flowers was produced in 1947. When replanted in 1948 the resulting crop was a commercial failure in 1949. Replanted again in 1949 with high grade bulbs the plants showed complete failure in 1950 with yellowing and dying back of the foliage in April followed by almost complete death of shoots by the end of June. The roots of the plants were found to be heavily infested with *Pratylenchus* spp.

T.G.

(130c) Systox spray (E-1059), an organic phosphate, inhibits the hatching of larvae from the cysts of *Heterodera rostochiensis* and kills the hatched larvae *in vitro*. In soil drench tests it did not reduce *H. rostochiensis* but gave good control of *H. marioni* with concentrations as low as 0.3% although there was considerable injury to the tomato plants used in the test.

R.T.L.

(130d) *Heterodera schachtii* in sugar-beet in Arizona is reported for the first time. Heavy infections appeared in one field of 34 acres in the Salt River Valley but the eelworm was not found in the other 30 fields of sugar-beet in the valley.

R.T.L.

131—Plant and Soil. The Hague.

- a. CHITWOOD, B. G., 1951.—“Root-knot nematodes. II. Quantitative relations of the root-knot nematode—*Meloidogyne hapla* Chitwood, 1949 with tomatoes, onions and lima beans.” 3 (1), 47–50.

(131a) Chitwood describes experiments in which plants of tomato, yellow globe onion and lima bean in 8 in. pots were exposed to varying numbers of egg masses of *Meloidogyne hapla*. He concludes that the amount of parasite produced on the plants depends on the quantity of inoculum, the amount of plant tissue present at the time of invasion and the species of host plant.

D.W.F.

132—Prensa Médica Argentina.

- a. RE, P. M., 1951.—“Hidatidosis. Accion de los antihistaminicos.” 38 (1), 32–35.

(132a) Re finds that the anti-histamine compounds can play a very useful role among patients showing signs of hydatid sensitivity. Following treatment with a substance such

as Benadryl there is considerable reduction in the cutaneous reactions. They correct the unbalance so often present among hydatid patients, they make treatment more tolerable and they hasten treatment. Agglutination is reduced considerably. These substances should not be used for patients who show no evidence of sensitization as clinical and humoral symptoms may be induced. Benadryl can be given in doses as large as 200 mg. per day over a long period and has been found particularly helpful after an operation for the removal of a cyst. P.A.C.

133—Proceedings of the Alumni Association of the King Edward VII College of Medicine, Singapore.

- a. JACKSON, H. F., 1951.—“Calcified worm in soft tissues of thorax.” 4 (1), 66.

(133a) A calcified lump about 7 cm. by 0.5 cm. removed from subcutaneous tissue of the chest could not be definitely diagnosed, but Jackson is of the opinion that the enclosed worm was a calcified *Dracunculus medinesis* as the patient had come from Madras Province where guinea-worm is endemic. R.T.L.

134—Research Bulletin. West of Scotland Agricultural College.

- a. GRAINGER, J., 1951.—“Soil injectors. Machines for the control of potato root eelworm and other soil-borne diseases by the application of volatile chemicals.” No. 11, 32 pp.

(134a) The injectors illustrated in this bulletin are mostly full-scale agricultural machines used particularly for the application of D-D. Standardized high and low pressure methods are described, but the most practical unit is a self-contained gravity-fed type mounted upon a standard tractor power-lift cultivator toolbar. This is provided with an automatic cut-off arrangement, and free-flow indicators show that the liquid is actually being delivered behind the cultivator tines. An attachment for tractor plough, and a small hand-pulled tool have also been made. The practical technique of injection, and several principles of design or operation with other liquids, are described. The simplicity and ease of operation of these machines should contribute in no small measure to the success of long-term D-D applications. J.G.

135—Revista Brasileira de Biologia.

- a. FREITAS, J. F. TEIXEIRA DE, 1951.—“Alguns Strongyloidea parasitos de *Procyon cancrivorus* (Cuv.) (Nematoda).” 11 (2), 189-202.

(135a) Teixeira de Freitas gives descriptive comments on the five species of bursate nematodes which have been reported from *Procyon cancrivorus*, viz., *Uncinaria maxillaris*, *Necator urichi*, *Ancylostoma braziliense*, *A. bidens* (n.comb. for *Dochmius bidens* Molin, 1861) and *A. caninum*. There are 35 original figures in the text. R.T.L.

136—Revista Ibérica de Parasitología.

- a. LÓPEZ-NEYRA, C. R., 1951.—“La *Taenia exigua* Dujardin 1845; redescipción y posición sistemática.” 11 (3), 253-264. [English summary p. 260.]
 b. GONZÁLEZ CASTRO, J., 1951.—“Hallazgo de *Metastrongylus apri* (Gmelin 1790) Vostokov 1905, en los pulmones de un niño.” 11 (3), 265-270. [English summary p. 268.]
 c. MORELL CUÉLLAR, L. & GONZÁLEZ CASTRO, J., 1951.—“Nuevo caso de distomatosis humana por *Fasciola hepatica*.” 11 (3), 271-281. [English summary p. 280.]
 d. LIZCANO HERRERA, J., 1951.—“Estrongilosis intestinales equinas.” 11 (3), 283-306. [English summary p. 297.]
 e. IBOLÉON HURTADO, E., 1951.—“Hidatidosis pulmonar en Granada.” 11 (3), 307-322. [English summary p. 321.]

(136a) *Taenia exigua* Dujardin 1845 is redescribed from *Fringilla coelebs* and transferred to the genus *Anomotaenia*. A table sets out the characters in which it differs from *A. heterocoronata* and *A. caledonica*. This is the first record of *A. exigua* from Spain. R.T.L.

(136b) *Metastrongylus apri* has seldom been recorded as a parasite of man. A new case is now reported from Spain. It was found at autopsy in the lung of a child six years of age who had died of asphyxia from drowning. R.T.L.

(136c) A new clinical case of *Fasciola hepatica* in man is reported from Spain. Cases recorded in the world literature since 1946 are briefly reviewed. R.T.L.

(136d) Fourteen known species of *Trichonema* are now recorded for Spain for the first time. Of the horses examined 99% were infected with Strongylidae. No eosinophilia was observed. *Cylicoercus catinatum* var. *lopezneyrai* n. var. is described and figured. There are 43 text figures. Phenothiazine proved effective except where there were concurrent intestinal or hepatic diseases. R.T.L.

137—Revista Kuba de Medicina Tropical y Parasitología.

- a. BASNUEVO, J. G., 1951.—"El hexylresorcinol en el tratamiento de la tricocefaliasis rectal." 7 (1/2), 17-18.

(137a) Basnuevo reports very good results from using 1 gm. of hexylresorcinol in 10 c.c. of glycerin and 200 c.c. water as an enema for the treatment of rectal infections with *Trichuris trichiura*. For children under five years of age, 0.2 gm. of hexylresorcinol, 2 c.c. of glycerin and 50 c.c. of water is recommended. Frequently three enemas are given at 5-day intervals and for exceptionally severe cases the simultaneous oral administration of Disparicide-Kutan is very effective. The mixture may be administered (i) by tube into the rectum or (ii) by tube into the duodenum, in which case the addition of 4 c.c. of tetrachlorethylene and 10 c.c. of peanut oil is recommended. If after cessation of treatment eggs are still found in the faeces, a 20-day course of Stovarsol and iron citrate (the latter to counteract anaemia) completes the cure. It is noted that hexylresorcinol causes irritation if allowed to remain for long on the skin. P.M.B.

138—Rivista di Parassitologia. Rome.

- a. ALICATA, J. E. & RICCI, M., 1951.—"Ricerche sulla trichinosi in Italia." 12 (2), 113-118. [English & French summaries pp. 117-118.]
 b. PUJATTI, D., 1951.—"Una nuova specie del genere *Echinopardalis* Travassos 1918 rinvenuta in India." 12 (2), 119-128. [English & French summaries p. 127.]
 c. CARTA, A., 1951.—"Le alterazioni dell'intestino e dei linfonodi regionali nella bilharziosi dei bovini." 12 (3), 169-183. [English & French summaries p. 183.]

(138a) Although a few cases of trichinosis have been reported in man in Italy, Alicata & Ricci failed to find any sign of infection in 529 pigs, 6 rodents and 43 human beings in North Italy; in 527 pigs, 30 rodents and 84 human beings in Central Italy; or in 506 pigs and 44 rodents in South Italy. In recent years about 290,000 pigs were negative when examined by the trichinoscope at establishments in North, Central and South Italy. R.T.L.

(138b) *Echinopardalis bangalorensis* n.sp. is an immature acanthocephalan which was found at Bangalore in South India encysted in the neck of 60 out of 75 specimens of *Francolinus pondicerianus*. The normal host is probably a local carnivore. The hooks on the proboscis total 36 and are arranged in six spiral rows. R.T.L.

(138c) Carta describes the macroscopic and microscopic changes in the intestine and regional lymphatic glands, viz., atrophy, hyperplasia, metaplasia and glandular ectopy, resulting from mass infection with *Schistosoma bovis* in seven cattle in northern Sardinia. From a study of the location of the parasite and of its pathogenic role, he concludes that bovine schistosomiasis is comparable with schistosomiasis *mansoni* in man. P.M.B.

139—Rivista di Zootecnia.

- a. TESTONI, R., 1951.—"I parassiti interni del maiale. Sistemi di prevenzione e di cura." 24 (1), 32-35.

140—Schweizer Archiv für Tierheilkunde.

- a. DELAK, M., 1951.—"Über die Wirkung des Natriumfluorid (Natrium fluoratum) auf *Ascaris lumbricoides* des Schweines." 93 (3), 184-193. [English, French & Italian summaries pp. 192-193.]

(140a) Delak reports on over 100 tests with sodium fluoride on whole *Ascaris lumbricoides* var. *suum* and on parts of the worms, both in the absence of food substance and in the intestinal contents of pigs. He found that sodium fluoride first caused excitation, acting more strongly on the nervous system than on the muscle; movement then decreased and disappeared as the tonus diminished. No effect was shown by sodium chlorides, bromides or iodides.

P.M.B.

141—Science.

- a. CHRISTIE, J. R. & PERRY, V. G., 1951.—"A root disease of plants caused by a nematode of the genus *Trichodorus*." 113 (2939), 491-493.
 b. KREUTZER, W. A., McBETH, C. W., TURNER, M., BERGESON, G. B. & WHETSTONE, R. R., 1951.—"The fungicidal and nematocidal properties of dibromobutene." 113 (2945), 657-658.

(141a) Christie & Perry describe a root disease affecting twelve widely differing vegetables grown in Florida. The eelworm responsible is a species of *Trichodorus* yet to be determined. They suggest the common names stubby root and stubby-root nematode for the disease and pathogen. The disease has been produced experimentally on beets and maize. The nematode feeds externally, and only with great care in handling can it be found attached to roots. Root tips are injured, the root branches and the tips are again attacked. Seedlings are most severely affected. Root necrosis increases with time but is probably due to secondary invaders. Above ground symptoms are typical of a plant with an inadequate root system.

J.B.G.

(141b) Kreutzer *et al.* claim useful nematocidal and fungicidal properties for *trans*-1,4-dibromobutylene-2, a white crystalline solid of relatively low vapour pressure. They were led to this by considering (i) the efficacy of unsaturated 3- and 4-carbon halogenated hydrocarbons (D-D mixture, dichlorobutylene, allyl bromide, chlorobromopropylene), and (ii) the difficulty of treating the top 2 in. of soil with volatile liquids. The substance was used as a dust in talc at 10%-20% by weight. In pot tests it was thoroughly mixed with soil and was found effective against root-knot at 0.05-0.2 gm. per gal. and against *Heterodera schachtii* at 0.2-0.4 gm. per gal. As a surface treatment, without any seal, it was not effective against root-knot at 200 lb. per acre, probably because the lower levels were not treated: the effective sphere of diffusion is limited to 2-3 in. radius.

B.G.P.

142—Svensk Jordbruksforskning.

- a. LINDFORS, T., 1951.—"Aktuellt från växtskyddet." Year 1951, pp. 122-128.

(142a) Attacks of *Ditylenchus dipsaci* in onions are described from Öland. Several fields have been damaged during 1950. The parasite has not been described from onions in Sweden before.

S.B.

143—Tierärztliche Umschau.

- a. WETZEL, R., 1951.—"Verbesserte McMaster-Kammer zum Auszählen von Wurmeiern." 6 (11/12), 209-210.
- b. PFIZENMAIER, G., 1951.—"Die Lungenwurmseuche bei den württembergischen Wandschafherden und ihre medikamentelle Behandlung unter Verwendung der Surfen-Jod-Suspension." 6 (11/12), 213-216.
- c. KORKHAUS, R., 1951.—"Erfahrungen mit Mandaverm bei der Askaridose des Hundes." 6 (13/14), 247-248.

(143a) Wetzel describes certain modifications to the counting chamber used with the McMaster egg counting technique which he has adopted. The strips of glass which separate the two slides are fixed to the lower slide by means of an acid-proof adhesive. The top slide is held in position by clamps at either end and is removable. It is claimed that these modifications make the chamber less liable to breakage and facilitate cleaning. A.E.F.

(143b) Pfizenmaier has treated two flocks of sheep infected with *Dictyocaulus filaria* and *Muellerius capillaris* by means of intratracheal injections of a suspension of "Surfen" and iodine. The dose varied between 6 and 15 c.c. (according to age) and was repeated after an eight-day interval. Faecal examinations were made (i) immediately before the first injection, (ii) 6 days after the first injection, (iii) three weeks after second injection, and (iv) four weeks after second injection. Percentage infections in the first flock (294 sheep) at each examination were: *D. filaria*, (i) 100%, (ii) 10%, (iii) 7%, (iv) 10%; *M. capillaris*, (i) 100%, (ii) 37%, (iii) 43%, (iv) 90%. For the second flock (306 sheep) percentages were: *D. filaria*, (i) 87%, (ii) 0%, (iii) 3%, (iv) 10%; *M. capillaris*, (i) 100%, (ii) 34%, (iii) 50%, (iv) 73%. Although the results with *M. capillaris* were not entirely satisfactory this method of treating lungworm disease in sheep is considered to be very promising. The drug was well tolerated and clinical symptoms almost entirely disappeared after the course of treatment. A.E.F.

(143c) Korkhaus reports the successful administration of "Mandaverm" (iso-amyl ester of mandelic acid) in the treatment of *Toxocara canis* and *Toxascaris leonina* infections in dogs. The dosage was 1.0 c.c. per kg. body-weight given in gelatine capsules: for larger dogs the dose can be reduced by 30%. A total of 53 dogs was treated: no details of results are given but it is stated that "in almost every case 100% of the ascarids were eliminated". Some success was also achieved against *Uncinaria* and *Trichuris* with double the normal dosage. The drug was well tolerated and even treble dosage produced no toxic effects. A.E.F.

144—Transactions of the American Microscopical Society.

- a. KUNTZ, R. E., 1951.—"Embryonic development of the excretory system in a psilostome cercaria, a gymnocephalous (fasciolid) cercaria and in three monostome cercariae." 70 (2), 95-118.
- b. WALL, L. D., 1951.—"The life history of *Vasotrema robustum* (Stunkard 1928), Trematoda: Spirorchidae." 70 (2), 173-184.

(144a) Continuing his studies on the excretory system in trematodes [for abstract of previous part see Helm. Abs., 19, No. 39a] Kuntz describes in considerable detail its developmental stages in the cercariae of *Psilostomum ondatrae*, *Fasciola hepatica*, *Notocotylus urbanensis*, *Nudacotyle novicia*, *Macravestibulum obtusicaudum* and *M. eversum*. The general plan in the psilostomes agrees closely with that of many echinostome cercariae. The early stages of development in *Fasciola hepatica* are also similar but the bladder of the mature cercaria of *F. hepatica* has a single cavity whereas in *P. ondatrae* there are two chambers. Throughout the article Kuntz quotes and critically considers the observations of previous writers. R.T.L.

(144b) In *Vasotrema robustum*, which occurs in the turtles *Amyda spinifera* and *A. ferox*, the first generation of sporocysts forms in the mantle of *Physa gyrina* and *P. integra*

and the second generation in the digestive glands. The cercariae emerge 27 days after infection by burrowing through the mantle. They survive at room temperature for $2\frac{1}{2}$ to 3 days. The cercarial body has a dorsal crest and the furcae have fin folds. The cercariae enter the definitive hosts through the oral, nasal and anal mucous membranes and attain sexual maturity in 10-12 months. They produce large operculate eggs. R.T.L.

145—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. NEWSOME, J., 1951.—"Recent investigations into the treatment of schistosomiasis by miracid in Egypt." 44 (6), 611-624. [Discussion pp. 624-634.]

(145a) Miracid D has a marked effect on *Schistosoma haematobium* but it is less pronounced on *S. mansoni*. Newsome recommends the use of a combination of faecal examination, hatching method and rectal biopsy as a routine testing technique to determine the effect of treatment. This combined technique greatly reduced the actual cure rates after miracid treatment, although clinically most patients appeared to be cured. R.T.L.

146—Tropical Gardening. Coral Gables, Florida.

- a. CHRISTIE, J. R., 1951.—"Some common root diseases of the South that are caused by nematodes." 1 (6), 12, 19.

(146a) In this popular article Christie explains what nematodes are and then deals with three kinds which parasitize garden plants in Florida, viz., root-knot nematodes, sting nematodes and stubby-root nematodes. He indicates the type of injury caused by each to the roots and discusses control measures. T.G.

147—Veterinary Medicine.

- a. INNES, J. R. M., 1951.—"Nervous disease of domesticated animals caused by filaria (*Setaria digitata*)." 46 (5), 192-193.
b. SCHNELLE, G. B., 1951.—"Periodicity of *Microfilaria* in dogs." 46 (6), 211.

(147a) Innes cites earlier work on lumbar paralysis in goats by Emoto (1927) in Japan, and Innes (1951) in Ceylon, and on "kumri" a similar condition in horses in Iran and India. Yamagiwa, Shoho, Tanaka *et al.* (1941-45) attributed comparable symptoms in sheep and horses in most parts of Japan and Korea, to the invasion of the nervous system from the cranial cavity and vertebral canal by the microfilariae of *Setaria digitata*, of which cattle are the natural hosts. Although paralysed Ceylonese goats showed identical lesions, no microfilariae or adult worms were found. Personal letters from Japanese workers and excerpts from the report of a Special Research Commission in Korea (1939-43) [which is unobtainable] indicate however that the Japanese were able to produce the disease experimentally in sheep. R.T.L.

(147b) Schnelle criticises the statement by Burch & Blair [for abstract see Helm. Abs., 20, No. 54a] that nocturnal sampling for microfilariae in dogs is unnecessary and points to the evidence of periodicity during the day given by Schnelle & Young [for abstract see Helm. Abs., 13, No. 92d]. Burch & Blair took their samples at 8.30 a.m. and 3.30 p.m. which are low points in the circulation of microfilariae. R.T.L.

148—Veterinary Record.

- a. CALLEAR, J. F. F., 1951.—"An attempt to control helminthiasis in cattle, goats and sheep in British Guiana." 63 (23), 401.

- b. OTTAWAY, C. W. & CLARKE, M. L., 1951.—“Further observations on the larval migration of *Strongylus vulgaris*.” [Abstract of paper presented to the Association of Veterinary Teachers and Research Workers, London, April 6, 1951.] 63 (26), 444.
- c. HORTON-SMITH, C. & LONG, P. L., 1951.—“Enheptin-T in the treatment of histomoniasis (blackhead) in turkeys.” 63 (31), 507.

(148a) In British Guiana the calves and goats on the Government Stock Farm are heavily infected with *Moniezia benedeni* and *Haemonchus contortus*. Dosing alternately with lead arsenate and with phenothiazine at six-weekly intervals was replaced successfully by a combination of 1 : 10 of these two drugs combined in a paste and given by syringe. Infection with *Oesophagostomum columbianum* was noted in the goats and *Oesophagostomum radiatum* in the calves. R.T.L.

(148b) Attention is drawn to the finding of *Strongylus vulgaris* larvae in the wall of an abdominal artery of a foal suffering from verminous thrombosis. The implications of this were discussed at a meeting of veterinary teachers and research workers [but are not reported in this note]. R.T.L.

(148c) In a series of tests on turkey poults experimentally infected with *Heterakis gallinae*, Enheptin-T (2 amino-5-nitrothiazole) proved a most effective compound against blackhead. A mash containing 0.05% first fed on the fourth day after infection gave complete protection while 0.1% proved excellent in the treatment of established infections. R.T.L.

149—Wisconsin Medical Journal.

- a. JURISHICA, A. J., 1951.—“Echinococcus cyst of the liver. Report of a case.” 50 (2), 168-170.

150—Young Farmer. London.

- a. WATSON, J. A. S., 1951.—“Discovery. IV. Potato root eelworm.” 19 (2), 79-80.

151—Zeitschrift für Parasitenkunde.

- a. RAUSCH, R., 1951.—“Studien an der Helminthenfauna von Alaska. IV. *Haploparaxis galli* n.sp., ein Cestode aus dem Schneehuhn, *Lagopus rupestris* (Gmelin).” 15 (1), 1-3.
- b. REICHENBACH-KLINKE, H. H., 1951.—“Eine neue Art der Trematodengattung *Dactylocotyle* am Schellfisch (*Gadus aeglefinus* L.).” 15 (1), 4-7.
- c. LÜLING, K. H., 1951.—“Neuere Untersuchungen über die Parasiten des Rotbarsches: *Sebastes marinus* (L.).” 15 (1), 8-24. [English summary p. 23.]
- d. GOFFART, H., 1951.—“Über die Verbreitung und Pathogenität des Wurzelgallennematoden (*Heterodera marioni*) in der Türkei.” 15 (1), 57-69.
- e. SZIDAT, L., 1951.—“Neue Arten der Trematodenfamilie Aporocotylidae aus dem Blut und der Leibeshöhle von Süßwasserfischen des Rio de la Plata.” 15 (1), 70-86. [Spanish summary p. 85.]

(151a) *Haploparaxis* [= *Aploparaksis*] *galli* n.sp. from *Lagopus rupestris* is differentiated from other species in which the cirrus is spinous by the form and size of the hooks. Although *H. sinensis* has hooks of similar length, i.e. about 14 μ , its egg-shells have polar thickenings. In *H. diminuens* the eggs measure 47 μ \times 31 μ , whereas in *H. galli* they are only 35 μ \times 28 μ . R.T.L.

(151b) *Dactylocotyle gadi* n.sp. on the gills of *Gadus aeglefinus* is differentiated from *D. palmatum* by the hooked prolongation of the egg capsule and from the other species of the genus in having 16 penile hooks. R.T.L.

(151c) The seven helminth species found in *Sebastes marinus* and their intermediate and definitive hosts are tabulated. 68% of these red perch caught off west Iceland were

infected, whereas in another fishing ground off Iceland the parasite incidence was only 8%. The frequent presence in *S. marinus* of sexually mature *Contracaecum* spp. suggests that it may be the final host for some species of this genus. The occurrence of larvae of *Anisakis*, *Anacanthocheilus* and *Porrocaecum* suggests that *Sebastes* may be an intermediate host for these genera. Smoke curing of the fish so changes the appearance of the nematodes that they are no longer recognizable by the layman. R.T.L.

(151d) Goffart gives observations made during a tour of Turkey with the object of investigating the distribution there of the root-knot nematode and its importance to the Turkish sugar-beet industry. After briefly outlining the life-history of *Heterodera marioni* and the conditions of sugar-beet culture in Turkey, he gives in detail an account of the root-knot infection found on the crop plants and weeds in the seven areas visited. The rainfall in Turkey is too light in general for good vegetative growth and irrigation is necessary but is usually carried out by primitive means. Under irrigation the root-knot nematode, which appears to be indigenous on weeds, attacks and produces galls on most crops including sugar-beet, tobacco and vegetables. Sugar-cane which is grown in the south had galls of a different type, long and spindle-like. No attack could be found on cotton or on groundnuts, both much cultivated in this region. New weed hosts recorded are: *Sisymbrium sophia*, *Rumex crispus*, *Zanthium spinosum*, *Chenopodium glaucum* and *Lapulla* sp. [*Lappula*]. A change of cropping with more rotation is recommended where possible. Good control of root-knot was achieved in preliminary pot tests with D-D and with a German preparation called P 4 having a hormone-like basis. M.T.F.

(151e) To the 13 known species of Aporocotylidae, Szidat adds two new forms from cyprinid fishes in the Rio de La Plata, Buenos Aires, viz., *Sanguinicola argentinensis* n.sp. from the heart and bulbus arteriosus of *Prochilodus platensis*, and *Plehnella coelomicola* n.g., n.sp. from the body-cavity of *Iheringichthys labrosus*. Immature specimens probably of *P. coelomicola* were collected from *Pimelodus clarias*. *Plehnella* can be distinguished from *Sanguinicola* by its body shape, its host habitat, the structure of the gut which has six diverticula, and the genital apparatus. The uterus is short and contains a single egg. R.T.L.

152—Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz.

- a. GOFFART, H., 1951.—“Der Kartoffelnematode als internationales Problem.” 58 (3/4), 82–88.

(152a) Goffart reviews the position of the potato root nematode, *Heterodera rostochiensis*, in Europe. For each country in turn where it is known to occur he gives the first record of its appearance, its spread and the present position. He also outlines the regulations adopted for its control. The countries dealt with are England, Scotland, Ireland, Germany, Sweden, Denmark, Holland, Austria, Finland, France, and Belgium, and he also describes the situation in the U.S.A. M.T.F.

153—Zeitschrift für Tropenmedizin und Parasitologie.

- a. RUDAT, K. D., 1951.—“Ein kasuistischer Beitrag über das Vorkommen mehrerer Fischbandwürmer beim Menschen.” 2 (3), 410–412. [English summary p. 412.]
 b. JETTMAR, H. M. & ANSCHAU, M., 1951.—“Beobachtungen an Parasiten steirischer Murmeltiere (*Arctomys marmota*).” 2 (3), 412–428. [English summary p. 427.]

(153a) Treatment with “Mapha”, a compound containing extract of male fern, yielded five fully developed *Diphyllbothrium latum* from a man at Erfurt in central Germany. The patient, whose general condition was good and who showed neither anaemia nor eosinophilia, had been released about 15 months previously from a Russian prisoner-of-war camp near Riga. P.M.B.

(153b) Jettmar & Anschau report very heavy but non-pathogenic infections with *Cittotaenia pectinata* in three *Arctomys marmota* in the Styrian Alps in Austria. The intermediate host is unknown, but is probably a mite. *Citellina alpina* n.sp. which is described from the same host, differs from *C. marmotae* in its larger size, in the greater length of the spicule which measures 330μ and in the more forward position of the vulva. The female measures $9.5-11$ mm. and the male 7 mm. The eggs, which measure $69-72.5\mu \times 34.5-39.5\mu$, have a long filament at each pole. The main differences between *C. alpina* and the three known species are tabulated. R.M.B.

154—Zentralblatt für Bakteriologie. Abteilung 1. Originale.

- a. BLÜMLEIN, H., 1951.—“Untersuchungen über das Vorkommen von Oxyuren im menschlichen Leichendarm.” 156 (6), 462-464.

(154a) Blumlein found 61 (75%) of 82 human cadavers examined at Erlangen during the spring and summer of 1947 to be infected with *Enterobius*. The number of worms per body varied between one and eight and roughly as many male as female worms were found. Most of the worms (90%) were found in the appendix and the remainder in the colon or, very rarely, in the ileum. The fact that so many worms are found in the appendix, where anthelmintics cannot reach them, is considered to explain the many obstinate cases of enterobiasis. A.E.F.

155—Zoologische Jahrbücher. Abteilung für Systematik, Ökologie und Geographie der Tiere.

- a. VOLZ, P., 1951.—“Untersuchungen über die Mikrofauna des Waldbodens.” 79 (5/6), 514-566.

(155a) In a section on nematodes, Volz gives tables of the numbers of nematodes of the different species found at various levels in the soil on several dates during the year in a beech wood, an oak-ash wood and a mixed coniferous forest; also in moss from three different situations. He finds that certain species only occur in certain layers and that in raw humus there is a succession of species during the year. He observes some relationship between the type of movement and the vertical distribution and also between the form of the mouth parts and feeding habits. He calculates the population density of nematodes per gramme of air-dry material and per square metre of soil surface. Volz describes three new species, *Rhabditis silvestris* n.sp. [mis-labelled in the drawing *silvatica*], *Hemicycliophora strenzkei* n.sp. [from the drawing apparently a *Pratylenchus* sp.] and *Criconema goffarti* n.sp. [from the description this should apparently be a *Criconemoides* sp.]. M.T.F.

156—Zooprofilassi. Rome.

- a. FONTANELLI, E., 1951.—“Le più importanti affezioni parassitarie degli ovini nel Lazio.” 6 (1), 28-39. [English summary p. 39.]
b. MURA, D., 1951.—“Aborto in capre da grave infestazione parassitaria (*Haemonchus contortus* e *Oesophagostomum radiatum*).” 6 (2), 81-84. [English & French summaries p. 84.]

(156a) *Haemonchus contortus*, *Chabertia ovina* and *Moniezia expansa* were the most frequent cause of damage in sheep from central Italy, examined at the Rome Zooprophyllactic Station between 1938 and 1949. The seasonal incidence of gastro-intestinal parasitism is shown in a graph in which the peaks are in February and August. R.T.L.

(156b) As abortion occurred in 45%-54% of two herds of goats in which allergic serological and bacteriological tests for *Brucella*, *Parabrucella*, *Salmonella abortus* and *Q* fever were negative, Mura is of the opinion that the abortions were associated with the intensity of infection with gastro-intestinal helminths. R.T.L.

NON-PERIODICAL LITERATURE

- 157—BODENHEIMER, F. S., 1951.—“Citrus entomology in the Middle East with special reference to Egypt, Iran, Irak, Palestine, Syria, Turkey.” The Hague; Dr. W. Junk, xii + 663 pp.

On pp. 601 to 603 of this monograph, Bodenheimer briefly discusses the citrus root eelworm, *Tylenchulus semi-penetrans*, which to date has been found only occasionally in Palestine. He states that no direct control measures have been carried out anywhere, but suggests the possibility of mass-breeding the predatory *Mononchus* spp. Indirect control consists in growing nursery stock in uninfested soil, and in good husbandry. B.G.P.

- 158—MOZLEY, A., 1951.—“The snail hosts of Bilharzia in Africa. Their occurrence and destruction.” London: H. K. Lewis & Co. Ltd., vii + 78 pp., 9/-.

This handy manual will fulfil the author's intention to assist laymen in different parts of Africa to recognize and destroy the molluscan vectors of schistosomiasis. It deals successively with the dangerous and harmless snails and their recognition and habitats, dangerous and safe types of water, the role of railways, roads, culverts and bridges in contributing to the spread of schistosomiasis, the precautions against infection which should be taken in mines, farms and gardens and the various methods of eliminating the molluscan vectors. R.T.L.

- 159—UNITED STATES DEPARTMENT OF AGRICULTURE, 1951.—“Index-catalogue of medical and veterinary zoology. Part 13. Authors: R to Rzóska.” Washington, D.C.: U.S. Government Printing Office, pp. 4055-4348.